Chapter 4: Risk Factors for CVD

Introduction

There are a variety of risk factors that contribute to CVD morbidity and mortality. Through extensive research, many of these risk factors for CVD have been identified and are well documented and understood. Each of these risk factors can be categorized as preventable (those over which the individual has control) or non-preventable (those over which the individual has no control) (Table 1). Fortunately, research has identified almost all of the risk factors for CVD and has shown that most are modifiable through simple lifestyle choices. While extensive efforts have been made in recent decades to improve these risk factors, many of these efforts have not been successful. This lack of successful behavior change can be attributed in part to societal barriers discouraging healthy behavior.

This chapter will focus on the preventable risk factors for CVD, including overweight and obesity, unhealthy eating, physical inactivity, high blood pressure, high blood cholesterol, diabetes, and cigarette smoking. When risk factors are combined, risk for CVD can increase. As a result, this chapter will also focus on multiple risk factors for CVD.

Table 1:
Risk Factors for CVD

Preventable Risk Factors

- Type-2 Diabetes
- High Blood Cholesterol
- High Blood Pressure
- Lack of Physical Activity
- Overweight and Obesity
- Unhealthy Eating
- Smoking

Non-Preventable Risk Factors

- Increasing Age
- Male Gender
- Race/Ethnicity
- Family History of Premature CVD

Table 2: Progress Toward the Nebraska HP2010 Objectives for CVD Risk Factors

NE HP2010 Objectives	Year	Nebraska Prevalence	NE 2010 Objective	% Change Necessary to achieve HP2010 Goals
Adult Objectives (18 years and older)				
Obesity	2002	23.2%	15.0%	-35.3%
No Leisure Time PA*	2002	22.0%	15.0%	-31.8%
Sufficient Moderate PA*	2001	24.2%	30.0%	24.0%
Sufficient Vigorous PA*	2001	16.3%	30.0%	84.0%
Diagnosed High Blood Pressure	2001	22.6%	16.0%	-29.2%
Current Cholesterol Screening	2001	65.4%	80.0%	22.3%
Diagnosed Hgh Blood Cholesterol	2001	27.8%	17.0%	-38.8%
Diagnosed Diabetes	2002	5.8%	2.5%	-56.9%
Current Cigarette Smoking	2002	22.7%	12.0%	-47.1%
Youth Objectives (students in grades 9-12 unless noted)				
Overweight Among K-12 Students	2002/2003	16.2%	-**	-
Sufficient Moderate PA*	2003	26.7%	35.0%	31.1%
Sufficient Vigorous PA*	2003	64.7%	85.0%	31.4%
Current Cigarette Smoking	2003	24.1%	15.0%	-37.8%

Note: Definitions and sources for each indicator can be found under the appropriate heading within this chapter
*PA=physical activity
**An objective is established for 9-12 grade students based on self-reported heights and weights, however the data presented within this table (from another source) are better quality and do not allow for valid comparison to the objective

Overweight and Obesity

Introduction

According to the Centers for Disease Control and Prevention (CDC) there is an obesity epidemic occurring among both youth and adults in America[1]. Behavioral Risk Factor Surveillance System data indicate that the percentage of obese U.S. adults nearly doubled between 1990 and 2002, increasing from 11.6 percent to 22.2 percent[2]. Similarly, between 1976-1980 and 1999-2000, the percentage of overweight U.S. children (ages 6-11) more than doubled (increasing 135%) while the percentage of overweight adolescents (ages 12-19) more than tripled (increasing 210%)[3].

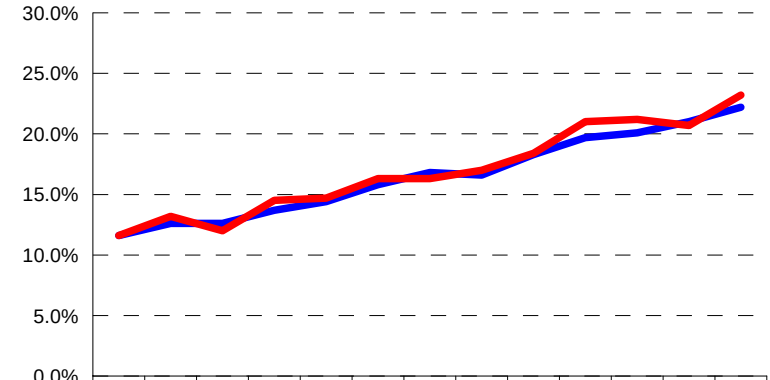
The physical and emotional impacts of overweight and obesity are extraordinary. Obese individuals are 50 to 100 percent more likely to die prematurely from any cause than individuals at a healthy body weight[4]. In addition, overweight and obesity substantially increase the risk for (among other diseases) coronary heart disease, type 2 diabetes, some forms of cancer, and certain musculoskeletal disorders such as osteoarthritis[4]. Overweight and obese individuals also may suffer from social stigmatization, discrimination, and poor body image[4].

Overweight and Obesity among Nebraska Adults[5]

Indicator Definitions for Body Mass Index (BMI) (weight in kilos divided by height in meters squared)
Underweight: BMI <18.5
Healthy Weight: BMI ≥18.5 but <25.0
Overweight: BMI ≥25.0 but <30.0
Obese: BMI ≥30.0

Nebraska HP2010 Objective:
15 percent obese (#19-2)

Figure 1: Obesity* Trends among NE and U.S. Adults



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Nebraska	11.6%	13.2%	12.0%	14.5%	14.7%	16.3%	16.3%	17.0%	18.4%	21.0%	21.2%	20.7%	23.2%
Nation	11.6%	12.6%	12.6%	13.7%	14.4%	15.8%	16.8%	16.6%	18.3%	19.7%	20.1%	21.0%	22.2%

*BMI (weight in kilograms divided by height in meters squared) of 30 or greater
Sources: Nebraska Behavioral Risk Factor Surveillance System; National Behavioral Risk Factor Surveillance System <www.cdc.gov/brfss.index.htm>

2002 Highlights

- Nearly 1 in every 4 Nebraska adults (aged 18 years and older) is obese (23.2%) while 2 in every 5, or an estimated 758,000 to 795,000 Nebraska adults, is either overweight or obese (60.2%).
- Approximately 1 in every 15 Nebraska adults (7.4%) suffers from either class-two obesity (BMI value of ≥ 35 and < 40) or class-three obesity (BMI value of ≥40). This level of obesity places individuals at extreme risk for obesity related health problems.

Obesity Trends

- Obesity among Nebraska adults doubled between 1990 and 2002, increasing from 11.6 percent to 23.2 percent (Figure 1).

Compared to the Nation in 2002[2]

- Nebraska ranks tied for 34th lowest in obesity (with Missouri) among 54 U.S. states and territories (interquartile range 19.5% to 23.8%).
- Compared to bordering states, Nebraska adults are more likely than adults in Colorado (16.5%), South Dakota (21.2%), and Wyoming (19.5%) to be obese (p<.001, .05, and .001 respectively).

Medical Expenses from Obesity[6]

- Obesity in Nebraska is costly and accounts for a significant prorportion of all medical expenses among Nebraska adults each year (Table 3).
- On an annual basis, obesity accounts for 5.8 percent of all medical expenses among Nebraska adults, or $454 million per year.
- Annual obesity-related medical expenses are $94 million for Nebraska Medicare enrollees and $114 million for Nebraska adult Medicaid enrollees.

Table 3: Estimated Annual Cost (in millions) for Obesity and Percentage of all Medical Expenses Due to Obesity, for Nebraska Adults (18 and older)

Total Adult Population		Medicare Population		Adult Medicaid Population	
%*	Cost**	%*	Cost**	%*	Cost**
5.8%	$454	7.0%	$94	10.3%	$114

*Percentage of all medical expenses resulting from obesity
**Estimated annual cost in millions for direct medical expenses
Source: Finkelstein, EA, Fiebelkorn, IC, Wang, G. *State-level estimates of annual medical expenditures attributable to obesity.* Obesity Research 2004;12(1):18-24.

Descriptive Analysis of Obesity, 2002

Age

- The relationship between age and obesity among Nebraska adults is curvilinear, indicating that middle age adults (in particular those aged 45-64 years, 28.7%) are the most likely to be obese.

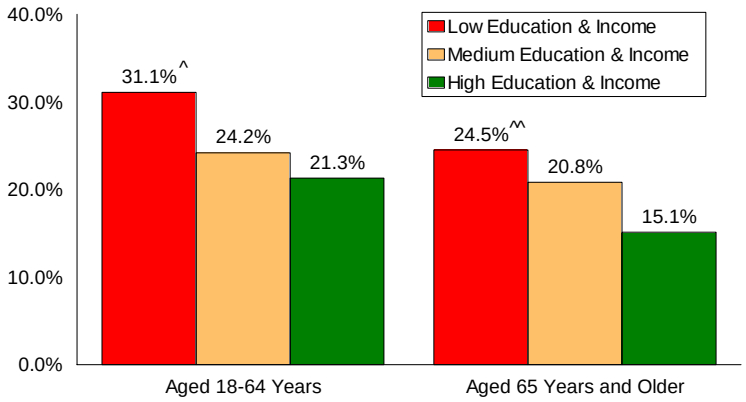
Gender

- Male adults in Nebraska are 28 percent more likely than female adults in Nebraska to be obese, 26.0 percent and 20.4 percent respectively (p<.001).
- Approximately 7 in every 10 male adults (69.7%) are either overweight or obese compared to half of all female adults (50.8%) (p<.001), indicating that male adults are 37 percent more likely than female adults to be overweight or obese.
- Obesity has increased dramatically among both male and female adults in Nebraska, however obesity among males is increasing at a much steeper pace. Between 1990 and 2002, the percentage of obese male adults in Nebraska increased 143 percent (from 10.7% to 26.0% respectively) while the percentage of obese female adults increased 63 percent (from 12.5% to 20.4% respectively).

Education & Income

- As level of education and income increase, obesity decreases among Nebraska adults (among both younger and older adults) (Figure 2).
- Among Nebraska adults aged 18-64 years, those with low education and income are 29 percent and 46 percent more likely than those with medium and high education and income respectively to be obese (Figure 2).
- Among Nebraska adults aged 65 years and older, those with low education and income are 63 percent more likely than those with high education and income to be obese (Figure 2).

Figure 2: Obesity* Among Nebraska Adults by Education & Income, 2002**



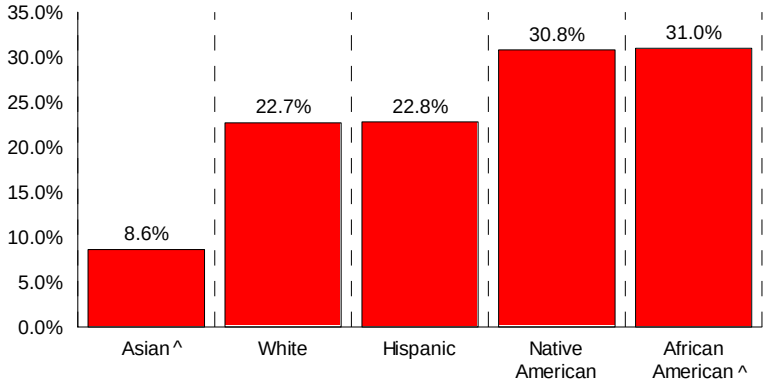
*BMI (weight in kilograms divided by height in meters squared) of 30 or greater
**Low ed/inc=<$25K income and H.S. or less education, medium ed/inc=neither low nor high ed/inc, high ed/inc=>$35K income and education beyond high school

^Significantly higher than med. & low ed/inc at the .05 leve
^^Significantly higher than low ed/inc at the .05 level
Listwise n=3,575 valid cases, 808 missing cases (18.4%)
Source: 2002 Nebraska Behavioral Risk Factor Survey

Race/Ethnicity Highlights from 2001 & 2002 (combined)

- African Americans and Native Americans are the most likely racial and ethnic groups in Nebraska to be obese, 31.0 percent and 30.8 percent respectively (Figure 3). In contrast, less than 1 in every 10 Asians (8.6%) are obese, making them less likely than all other racial and ethnic groups to be obese.
- Racial and ethnic disparities in obesity are most prominent among females. Compared to White females, Hispanic females are 1.2 times more likely to be obese, African American females are 1.8 times more likely to be obese, and Native American females are more than twice as likely (relative risk 2.1) to be obese (all p<.05 respectively). In contrast, Asian females are 56 percent less likely than White females to be obese (p<.05).

Figure 3: Obesity* Among Nebraska Adults by Race/Ethnicity, 2001-2002



*BMI (weight in kilograms divided by height in meters squared) of 30 or greater
Note: racial categories include non-hispanic only
^Difference between race/ethnicity and white is significant at the .05 level
Missing data=1,370 cases (8.4%)
Source: Nebraska Behavioral Risk Factor Survey & Nebraska Minority Over-sample Risk Factor Survey

Urban/Rural

- Nebraska adults aged 25-44 years living outside of Nebraska's three urban-metropolitan counties (Douglas, Lancaster, and Sarpy) are 30 percent more likely than adults living within Nebraska's three urban-metropolitan counties to be obese, 24.8 percent and 19.1 percent respectively (p<.01). Differences within other age-categories were non-significant.

At Risk for Overweight and Overweight among Nebraska Youth (in grades K-12), 2002/2003 Academic School Year[7]

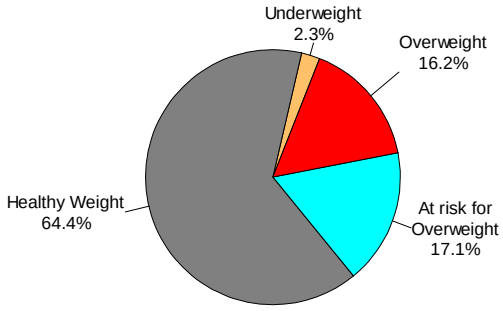
Indicator Definitions (based on gender and age specific values from the 2000 CDC Growth Charts)
Underweight: <5th Percentile
Healthy Weight: ≥5th Percentile but <85th Percentile
Overweight: BMI ≥85th Percentile but <95th Percentile
Obese: BMI ≥95th Percentile

Nebraska HP2010 Objective: None Established (using objectively measured data)

2002/2003 Highlights

- In Nebraska, 1 in every 6 students (16.2%) in grades K-12 is overweight while an additional 1 in every 6 (17.1%) is at risk for overweight (Figure 4). This indicates that 1 in every 3 (33.3%), or approximately 106,000 Nebraska students, is either at risk for overweight or overweight.

Figure 4: BMI Classifications* for Nebraska Students in Grades K-12, 2002/2003



*Represent age (mid-point value) and gender specific BMI values from the 2000 CDC growth charts: Underweight: <5th percentile; Healthy Weight: ≥ 5th but < 85th percentile; At risk for Overweight: ≥ 85th but < 95th percentile; Overweight ≥ 95th percentile

Descriptive Analysis of Overweight, 2002/2003

Grade Differences

- Students in late elementary and early middle school grades (4-6) are the most likely to be overweight.
- Students in grades 3-8 are more likely than students in both younger (K-2) and older (9-12) grades to be overweight, 17.4 percent, 13.5 percent ($p < .001$), and 16.2 percent ($p < .01$) respectively.

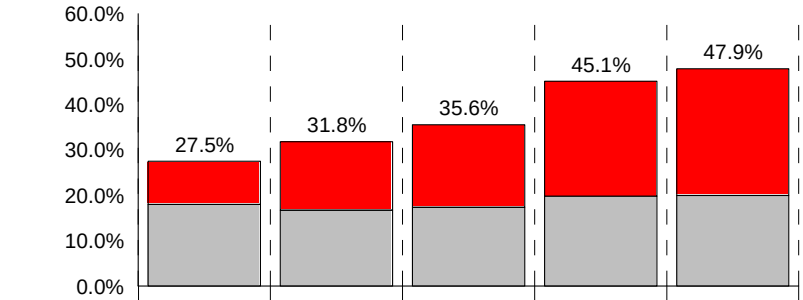
Gender Differences

- Male students are 24 percent more likely than female students to be overweight, 17.8 percent and 14.4 percent respectively ($p < .001$).
- As grade level increases, the overweight disparity between males and females increases. While male and female students are equally likely to be overweight in grades K-3, male students are 33 percent more likely than female students to be overweight in grades 9-12.

Racial/Ethnic Differences

- Native American students (27.9%) and Hispanic students (25.3%) are more likely than students of any other race/ethnicity to be overweight (Figure 5). Native American students are 1.8 times more likely than White students while Hispanic students are 1.7 times more likely than White students to be overweight ($p < .001$). Furthermore, close to half of Native American and Hispanic students are either at risk for overweight or overweight, 47.9 percent and 45.1 percent respectively.
- African American students are 20.5 percent more likely than White students to be overweight, 18.2 percent and 15.1 percent respectively ($p < .01$) (Figure 5). However, gender differences indicate that African American females are 47 percent more likely than White females to be overweight ($p < .001$) while African American and White males are equally likely to be overweight.
- Asian students (9.5%) are less likely than students of any other race/ethnicity to be overweight. In particular, Asian students are 37 percent less likely than White students to be overweight, 9.5 percent and 15.1 percent respectively ($p < .01$).

Figure 5: At Risk for Overweight or Overweight*
Nebraska Students in Grades K-12 by Race, 2002/2003



	Asian	White	African American	Hispanic	Native American
Overweight	9.5%	15.1%	18.2%	25.3%	27.9%
At Risk	18.0%	16.8%	17.3%	19.8%	20.0%
Overweight RR Race:White**	0.63^	reference	1.21^	1.68^	1.85^

*Represent age (mid-point value) and gender specific BMI values from the 2000 CDC growth charts: At risk for Overweight: ≥ 85th but < 95th percentile; Overweight ≥ 95th percentile

***Relative risk represents the race to white percentage ratio for overweight
^Percentage overweight is significantly different from white ($p<.05$)

Geographic Differences

- Students in the western region of the state have the lowest percentage of overweight students, and are significantly less likely than students in the northeastern (16.7%), south central (18.0%), and southeastern (16.9%) regions of the state to be overweight.
- In contrast, students in the south central region of the state have the highest percentage of overweight students, and are significantly more likely than students in the eastern (15.1%), north central (14.9%), northeastern (16.7%), and western (14.0%) regions of the state to be overweight.

Unhealthy Eating

Fruit and Vegetable Consumption

Introduction

The United States Department of Agriculture (USDA) recommends that Americans consume at least five servings of fruits and vegetables per day, while some research studies support the consumption of up to nine servings of fruits and vegetables per day[8]. According to the Division of Nutrition and Physical Activity at the CDC, a diet rich with fruits and vegetables and low in fats, particularly saturated fats, may help to reduce the risk of cardiovascular disease, high blood pressure, and diabetes[9]. Additional information on the association between fruit and vegetable consumption and cardiovascular disease risk can be found in the heart disease and stroke risk factors sections of Chapter 2.

Indicator Definition

5-a-day represents the percentages (of adults and youth) that consume 5 or more daily servings of fruits and vegetables.

Nebraska HP2010 Objectives: None Established (for adult or youth)

Fruit and Vegetable Consumption among Nebraska Adults[5]

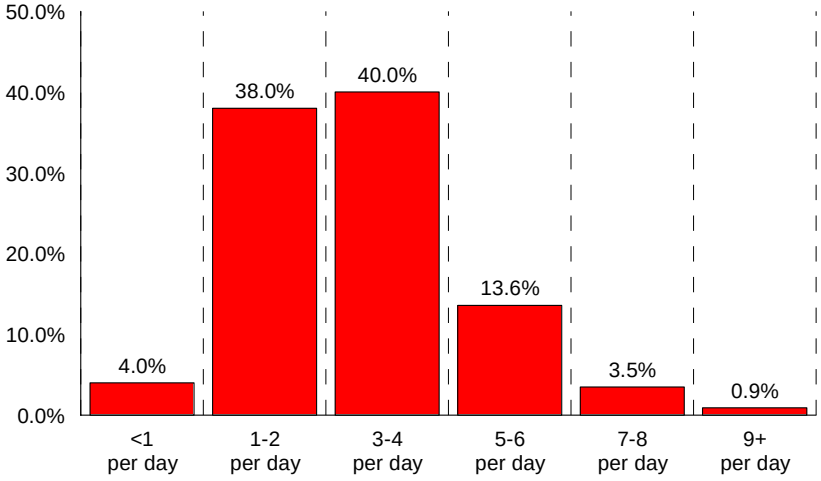
2002 Highlights

- Nebraska adults consume, on average, 3.5 servings of fruits and vegetables per day.
- Less than 1 in every 5 Nebraska adults (18.0%) consumes 5-a-day, while just 1 percent consumes 9-a-day (Figure 6).
- It is estimated that between 990,000 and one million Nebraska adults do not consume 5-a-day.

5-a-day Trends

- Between 1990 and 2002, 5-a-day consumption among Nebraska adults has remained virtually unchanged.

Figure 6: Daily Servings of Fruits and Vegetables Among Nebraska Adults, 2002



n=4,380 valid cases, 3 missing cases (0.1%)
Source: 2002 Nebraska Behavioral Risk Factor Survey

Compared to the Nation in 2002[2]

- Nebraska ranks 4th lowest in 5-a-day consumption among 54 U.S. states and territories (interquartile range 20.6% to 27.5%).
- Compared to bordering states, Nebraska adults are less likely than adults in Colorado (23.9%), Iowa (19.8%), South Dakota (20.7%), and Wyoming (22.1%) to consume 5-a-day (p<.001, .05, .01 and .001 respectively).

Descriptive Analysis of fruit and vegetable consumption, 2002

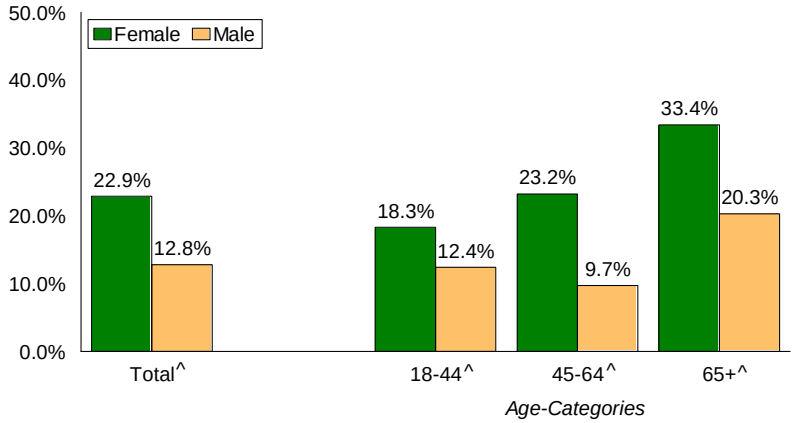
Age

- As age increases fruit and vegetable consumption increases among Nebraska adults. Older adults in Nebraska (aged 65 years and older) are 1.8 times more likely then younger adults (aged 18-64 years) to consume 5-a-day, 28.1 percent and 15.7 percent respectively (p<.001).

Gender

- Slightly more than 1 in every 5 female adults in Nebraska (22.9%) consumes 5-a-day compared to just 12.8 percent of male adults (Figure 7). This indicates that female adults in Nebraska are 1.8 times more likely than male adults in Nebraska to consume 5-a-day (p<.001).
- While females are more likely than males to consume 5-a-day across all ages, the gender disparity in 5-a-day consumption is greatest among Nebraska adults aged 45-64 years (relative risk 2.4) (Figure 7).

Figure 7: 5-a-day Consumption*
Among Nebraska Adults by Gender and Age, 2002

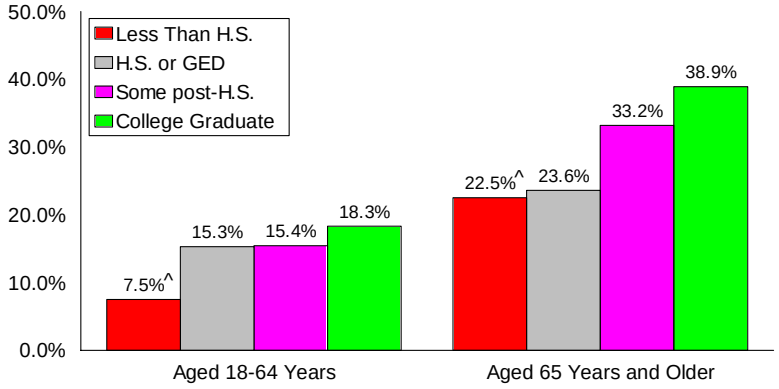


*Adults that consume 5 or more daily servings of fruits and vegetables
^The female percentage is significantly higher than the male percentage at the .001 level
Source: 2002 Nebraska Behavioral Risk Factor Survey

Education & Income

- Level of education is associated with 5-a-day consumption but income is not.
- As level of education increases, 5-a-day consumption increases among both younger and older adults (Figure 8). Among Nebraska adults aged 18-64 years, college graduates are 2.4 times more likely than adults with less than a high school education to consume 5-a-day, 18.3 percent and 7.5 percent respectively.

Figure 8: 5-a-day Consumption*
Among Nebraska Adults by Education, 2002



*Adults that consume 5 or more daily servings of fruits and vegetables
^Significantly lower than all other education categories at the .05 level
^^Significantly lower than adults with some college and college graduates at the .05 level
Listwise n=3,716 valid cases, 667 missing cases (15.2%)
Source: 2002 Nebraska Behavioral Risk Factor Survey

Race/Ethnicity

- Compared to Whites, African Americans are 19 percent less likely and Hispanics are 28 percent less likely to consume 5-a-day (p<.05 and .01 respectively).

Urban/Rural

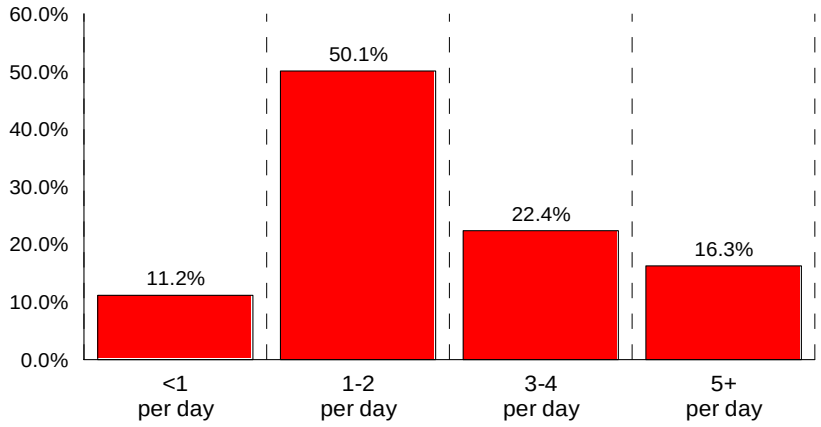
- 5-a-day consumption does not differ by urban and rural county classification.

Fruit and Vegetable Consumption among Nebraska High School Students[10]

2003 Highlights

- Just 1 in every 6 Nebraska high school students (16.3%) meet the USDA recommendation of 5 or more daily servings of fruits and vegetables (5-a-day) (Figure 9).
- In fact, 3 in every 5 students (61.3%) eats 2 or fewer servings of fruits and vegetables per day, far below the USDA recommendation.

Figure 9: Daily Servings of Fruits and Vegetables Among Nebraska High School Students*



*Average number of times per day that fruits and vegetables were eaten during the 7 days preceding the survey
n=2,750 valid cases, 183 missing cases (6.2%)
Source: 2003 Nebraska Youth Risk Behavior Survey

Compared to the Nation in 2003[11]

- High school students nationally are 35 percent more likely than high school students in Nebraska to consume 5-a-day, 22.0 percent and 16.3 percent respectively.

Descriptive Analysis of Fruit and Vegetable Consumption, 2003

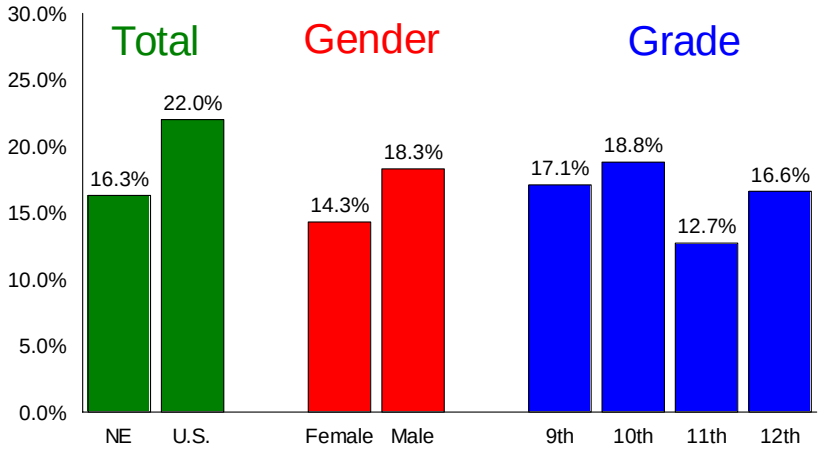
Gender

- Male students are 28 percent more likely than female students to consume 5-a-day, 18.3 percent and 14.3 percent respectively ($p<.01$) (Figure 10).

Grade

- Students in grades 9 and 10 are 23 percent more likely than students in grades 11 and 12 to consume 5-a-day, 18.0 percent and 14.6 percent respectively ($p<.05$).

Figure 10: 5-a-day Consumption* Among Nebraska High School Students, 2003



*Students that reported consuming fruits and vegetables 5 or more times per day during the 7 days preceding the survey
Source: 2003 Nebraska Youth Risk Behavior Survey

Milk Consumption

Introduction

In the past several years, a growing body of research suggests that dairy products (including milk, cheese and yogurt) may play a role in weight management efforts when coupled with a balanced reduced-calorie diet[12]. Many of these studies conclude that dairy consumption, which is high in dietary calcium, decreases the risk for overweight and obesity while lowering the risk for insulin resistance syndrome.

Milk Consumption among Nebraska High School Students[10]

Indicator Definition

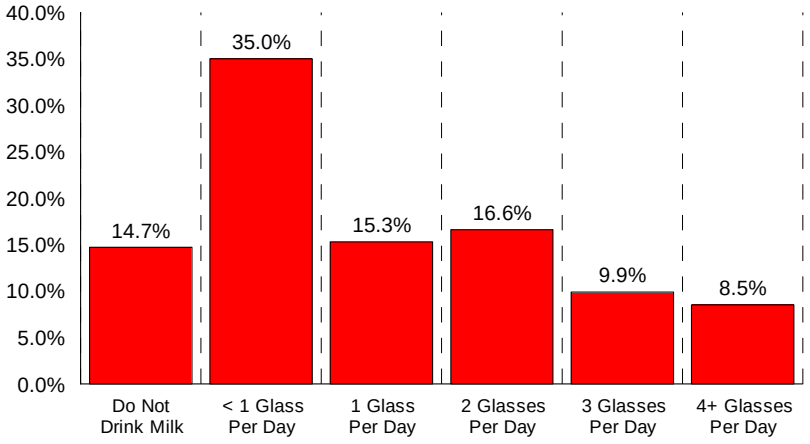
Regular Milk Consumption represents the percentage of Nebraska high school students that consumed 3 or more glasses of milk per day during the 7 days preceding the survey.

Nebraska HP2010 Objective: None Established

2003 Highlights

- More than 8 in every 10 Nebraska high school students (85.6%) drank milk during the seven days preceding the survey, however half (49.6%) consumed less than one glass per day (Figure 11).
- Less than 1 in every 5 students (18.4%) consumed milk regularly during the seven days preceding the survey.
- Among students that drank milk during the seven days preceding the survey and were aware of the fat content in the milk they drank, more than 1 in every 4 students (27.7%) drank no 1% fat or skim milk, meaning they consumed only higher fat (2% or whole) milk.

Figure 11: Average Glasses of Milk Drunk Per Day Among Nebraska High School Students



*Self-reported milk consumption during the 7 days preceding the survey, n=2,888 (missing=45)
n=2,888 valid cases, 45 missing cases (1.5%)
Source: 2003 Nebraska Youth Risk Behavior Survey

Compared to the Nation in 2003[11]

- While Nebraska high school students appear slightly more likely than U.S. high school students to consume milk regularly, the difference is non-significant, 18.4 percent and 17.1 percent respectively.

Descriptive Analysis of Milk Consumption, 2003

Gender

- Male students are more likely than female students to consume any amount of milk, and when consuming, they tend to consume larger amounts of milk. These findings are particularly concerning given the calcium recommendations for adolescent females. Dairy products are an excellent source of calcium and can help to maximize peak bone mass and protect the skeleton against

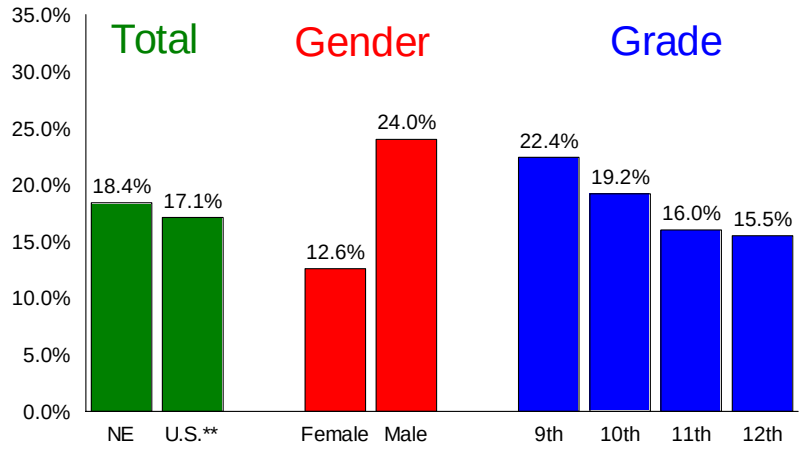
future risk for osteoporosis. Male students are nearly twice as likely as female students to consume milk regularly, 24.0 percent and 12.6 percent respectively (p<.001) (Figure 12).

- Although male students are more likely to consume milk, female students are more likely to consume 1% fat or skim milk. Among students that drank milk during the seven days preceding the survey and were aware of the fat content in the milk they drank, female students were 9 percent more likely than male students to often or always consume 1% fat or skim milk during the seven days preceding the survey, 57.8 percent and 53.0 percent respectively (p<.05).

Grade

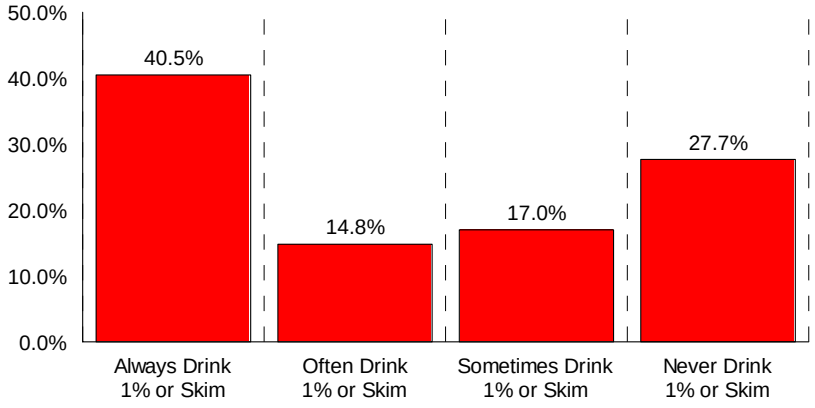
- As grade level increases, milk consumption decreases (Figure 12). Students in grade 9 (22.4%) were more likely than students in grades 11 (16.0%) and 12 (15.5%) to regularly consume milk during the seven days preceding the survey (p<.01).

Figure 12: Regular Milk Consumption Among Nebraska High School Students* by Gender and Grade, 2003



*Students that reported consuming 3 or more glasses of milk per day during the seven days preceding the survey
Source: 2003 Nebraska Youth Risk Behavior Survey
**Source: MMWR, Vol. 53, No. SS-2, May 21, 2004

Figure 13: 1% Fat or Skim Milk Consumption Among Nebraska High School Students that drink milk and are aware of the fat content in the milk they usually drink*



*Among those that consumed milk during the seven days preceding the survey and have know ledge of the fat content in the milk they usually drink
n=2,226
Source: 2003 Nebraska Youth Risk Behavior Survey

Soda Consumption

Introduction

According to the USDA, soft drink consumption in the United States (including soda, fruit flavored and part juice drinks, and sports drinks) increased 500 percent in the past 50 years[13]. Among all soft drinks, soda is the most frequently consumed[13]. The high consumption of sugar that results from soft drink consumption is contrary to the Dietary Guidelines for Americans that recommend choosing sensibly to limit intake of beverages and foods that are high in added sugar[13].

Soda Consumption among Nebraska High School Students[10]

Indicator Definitions

Regular Soda Consumption represents the percentage of Nebraska high school students that consumed 12 or more ounces of soda per day during the 7 days preceding the survey.

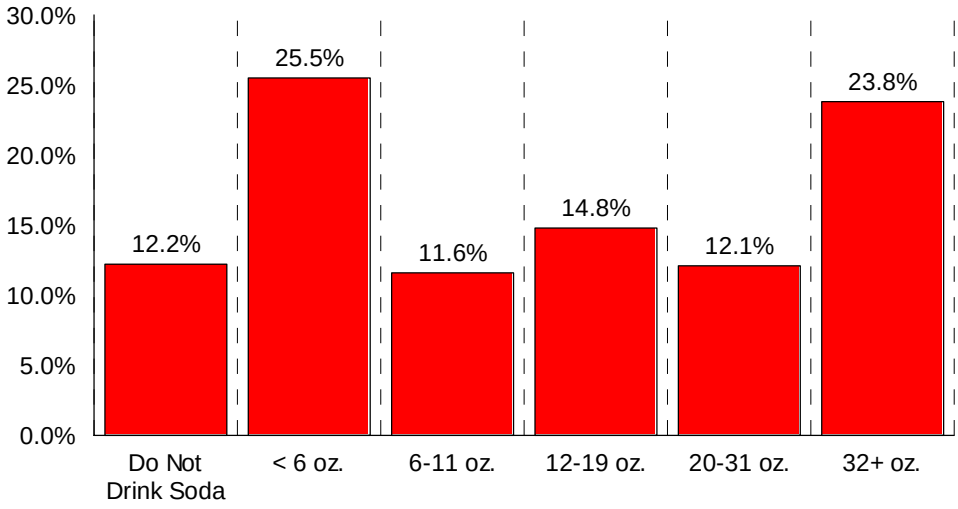
Excessive Soda Consumption represents the percentage of Nebraska high school students that consumed 32 or more ounces of soda per day during the 7 days preceding the survey.

Nebraska HP2010 Objective: None Established

2003 Highlights

- Almost 9 in every 10 Nebraska high school students (87.8%) drank soda during the seven days preceding the survey.
- Half (50.7%) drink soda regularly (12 or more ounces of soda per day) while 1 in every 4 students (23.8%) drink soda excessively (32 or more ounces of soda per day).
- The majority of soda consumed by Nebraska high school students is regular (non-diet) soda, which contains a large number of empty sugar calories. Among students that drank soda during the seven days preceding the survey, 2 in every 3 (63.6%) consumed only regular (non-diet) soda.

Figure 14: Average Ounces of Soda Drunk Per Day Among Nebraska High School Students*



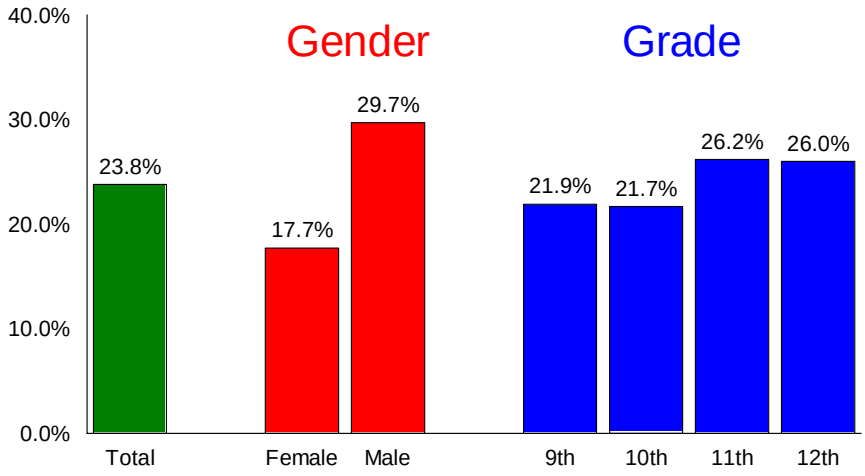
*This variable represents soda consumption behaviors during the 7 days preceding the survey and was created by combining (two questions) the soda consumption frequency and amount questions
n=2,558 valid cases, 375 missing cases (12.8%)
Source: 2003 Nebraska Youth Risk Behavior Survey

Descriptive Analysis of Soda Consumption, 2003

Gender

- Male students are more likely than female students to consume any amount of soda, and when consuming, they tend to consume larger amounts of soda. Male students were 1.7 times more likely than female students to consume 32 or more ounces of soda per day during the seven days preceding the survey, 29.7 percent and 17.7 percent respectively (p<.001).
- Male students are not only more likely to consume soda, but are also more likely to consume regular (non-diet) soda when consuming. Among students that drank soda during the seven days preceding the survey, male students were 1.4 times more likely than female students to consume only regular (non-diet) soda, 74.3 percent and 52.4 percent respectively (p<.001)

Figure 15: Percentage of Nebraska High School Students that drink 32 or more oz. of soda daily* by Gender and Grade

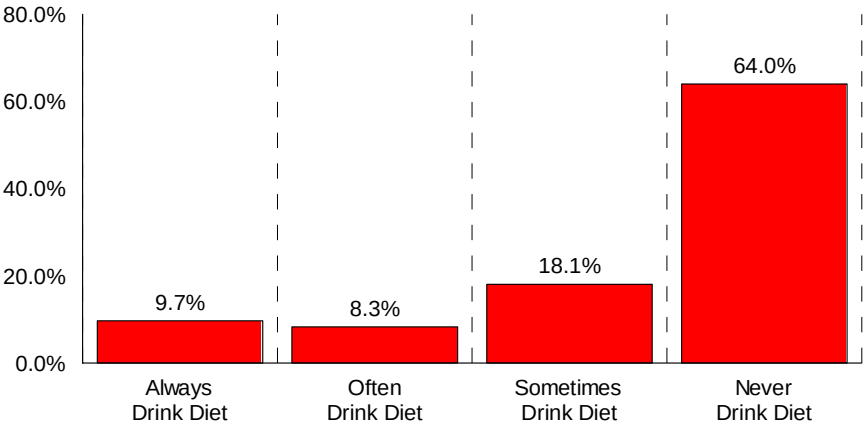


*Students that reported consuming 32+ oz. of soda daily during the 7 days preceding the survey
Source: 2003 Nebraska Youth Risk Behavior Survey

Grade

- Soda consumption varies across grade levels with the highest daily consumption among students in the 11th and 12th grades (Figure 15). Students in grades 11 and 12 were 20 percent more likely than students in grades 9 and 10 to consume 32 or more ounces of soda per day during the seven days preceding the survey, 26.1 percent and 21.8 percent respectively (p<.05).

Figure 16: Diet Soda Consumption Among Nebraska High School Students that Drink Soda*



*Represents frequency of diet soda consumption during the seven days preceding the survey among students that reported drinking soda
n=2,345
Source: 2003 Nebraska Youth Risk Behavior Survey

Physical Inactivity

Introduction

According to the CDC, more than 60 percent of U.S. adults do not engage in the recommended amount of physical activity, while 25 percent are not active at all[14]. Among youth, nearly half of all Americans aged 12-21 years are not vigorously active on a regular basis[15]. In addition, about 14 percent of young people report no recent physical activity[15].

Regular physical activity has numerous health benefits including decreased risk for heart disease and stroke. These benefits indicate that:

- Physical activity is as important to the development of CHD as controlling high blood pressure, controlling high blood cholesterol, and not smoking[16].
- Physically inactive people are almost twice as likely to develop CHD as people who engage in regular physical activity[17].
- Moderate to high levels of physical activity can reduce the risk of having a stroke (including total, ischemic, or hemorrhagic)[18].
- Compared to low-active individuals, it is estimated that highly active individuals have a 25-64 percent lower risk of stroke incidence or mortality[18].

Additional benefits from regular physical activity include[14]:

- Decreased risk of developing high blood pressure, colon cancer, and diabetes.
- Reduced blood pressure in some people with hypertension.
- Helps maintain healthy bones, muscles, and joints.
- Reduced symptoms of anxiety and depression and improvements in mood and feelings of well being.
- Helps control weight, develops lean muscle, and reduces body fat.

No Leisure Time Physical Activity Among Nebraska Adults, 2002[5]

Indicator Definition

No Leisure Time Physical Activity represents the percentage of adults that, other than their regular job, did not participate in any physical activities or exercises during the 30 days preceding the survey.

Nebraska HP2010 Objective:
15 percent (#22-1)

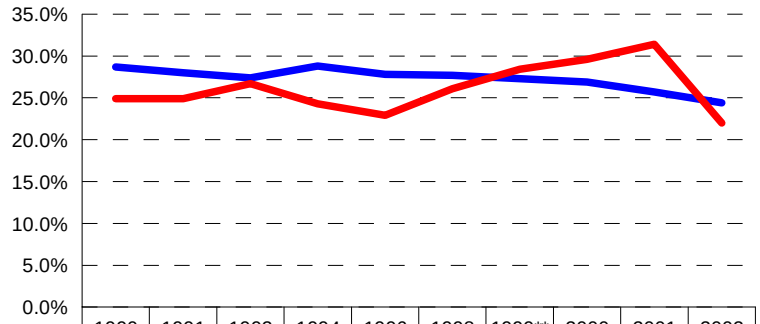
2002 Highlights

- More than 1 in every 5 Nebraska adults (22.0%), an estimated 268,000 to 300,000 Nebraska adults, do not engage in leisure time physical activity (Figure 17).

Trends

- Between 1996 and 2001, no leisure time physical activity increased 37.1 percent, from 22.9 percent to 31.4 percent (sig at .001 level) before declining dramatically in 2002 to 22.0 percent (Figure 17).

Figure 17: No Leisure Time Physical Activity* Among NE and U.S. Adults



	1990	1991	1992	1994	1996	1998	1999**	2000	2001	2002
Nebraska	24.9%	24.9%	26.7%	24.3%	22.9%	26.1%	28.4%	29.6%	31.4%	22.0%
Nation	28.7%	28.0%	27.4%	28.8%	27.8%	27.7%		26.9%	25.7%	24.4%

*Adults that have ever been told by a doctor, nurse, or health professional that their blood cholesterol is high, among those that have every had their blood cholesterol checked.
**National data unavailable for 1999
Sources: Nebraska Behavioral Risk Factor Surveillance System; National Behavioral Risk Factor Surveillance System <www.cdc.gov/brfss.index.htm>

Compared to the Nation in 2002[2]

- Nebraska adults rank relatively well compared to the rest of the nation. In 2002, they ranked tied for 17th lowest (with Connecticut) in no leisure time physical activity among 54 U.S. states and territories (interquartile range 20.9% to 27.3%).
- Compared to bordering states, Nebraska adults are more likely than adults in Colorado (19.3%) to engage in no leisure time physical activity (p<.01), while less likely than adults in Missouri (26.5%) and South Dakota (23.8%) to engage in no leisure time physical activity (p<.001 and .05 respectively).

Descriptive Analysis of No Leisure Time Physical Activity, 2002

Age

- Among Nebraska adults, there is a positive linear relationship between age and no leisure time physical activity, indicating that older adults are more likely than younger adults to not engage in leisure time physical activity.

Gender

- The overall gender difference in no leisure time physical activity is non-significant (23.0% for female and 20.9% for male). However, among Nebraska adults aged 18-24 years, females are 1.9 times more likely than males to not engage in leisure time physical activity, 17.8 percent and 9.5 percent respectively (p<.05).

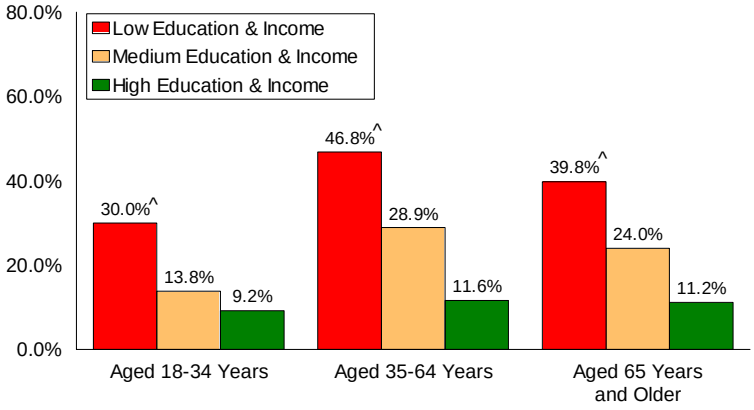
Education & Income

- Nebraska adults with low education and income are far more likely than Nebraska adults with high education and income to not engage in leisure time physical activity (Figure 18).

Race/Ethnicity Highlights from 2001 & 2002 (combined)

- Among Nebraska adults, nearly 2 in every 5 African Americans (38.1%) and more than 2 in every 5 Hispanics (44.2%) do not engage in any leisure time physical activity, making them 43 percent and 71 percent more likely than Whites (25.9%) to not engage in leisure time physical activity respectively. (p<.001 respectively) (Figure 19).

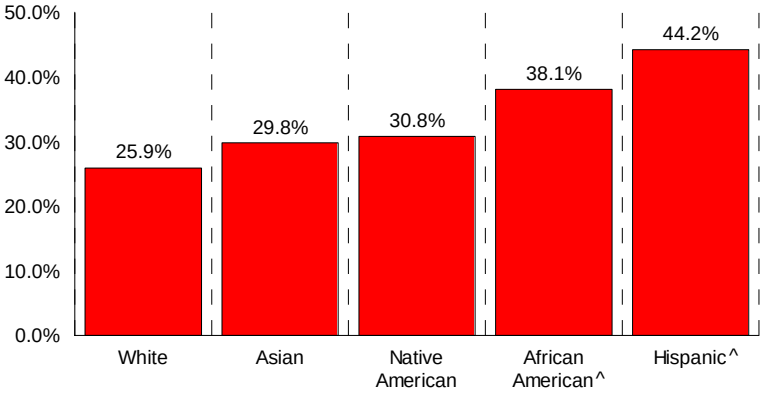
Figure 18: No Leisure Time Physical Activity*
Among Nebraska Adults by Education & Income, 2002**



*Adults that did not engage in any leisure time physical activity (outside of work) during the past 30 days
**Low ed/inc=<$25K income and H.S. or less education, medium ed/inc=neither low nor high ed/inc, high ed/inc=≥$35K income and education beyond high school

^Significantly higher than medium and high ed/inc at the .001 level
Listwise n=3,715 valid cases, 668 missing cases (15.2%)
Source: 2002 Nebraska Behavioral Risk Factor Survey

Figure 19: No Leisure Time Physical Activity*
Among Nebraska Adults by Race/Ethnicity, 2001-2002



*Adults that did not engage in any leisure time physical activity (outside of work) during the past 30 days
Note: racial categories include non-hispanic only
^Difference between race/ethnicity and white is significant at the .001 level
Missing data=250 cases (1.5%)
Source: Nebraska Behavioral Risk Factor Survey & Nebraska Minority Over-sample Risk Factor Survey

Urban/Rural

- Nebraska adults aged 18-34 years living outside of Nebraska's three urban-metropolitan counties (Douglas, Lancaster, and Sarpy) are 55 percent more likely than adults living within Nebraska's three urban-metropolitan counties to not engage in leisure time physical activity, 19.1 percent and 12.3 percent respectively (p<.01). Differences within both middle and older adult age-categories are non-significant.

Recommended Vigorous Physical Activity among Nebraska Adults, 2001[5]

Indicator Definition

Recommended Vigorous Physical Activity represents the percentage of adults that engage in vigorous physical activity for 20 or more minutes on 3 or more days per week.

Nebraska HP2010 Objective: 30 percent (#22-3)

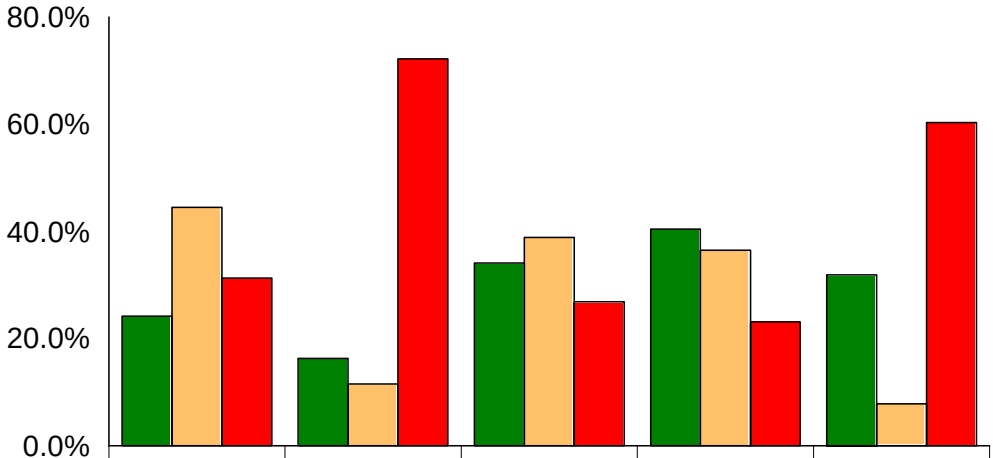
2001 Highlights

- Approximately 1 in every 6 Nebraska adults (16.3%) engages in recommended vigorous physical activity (Figure 20). In contrast, this indicates that 5 in every 6 Nebraska adults, or an estimated 1,064,000 to 1,095,000 Nebraska adults, do not engage in recommended vigorous physical activity.

Trends

- While the trend was inconsistent between 1989-2000, the percentage of Nebraska adults engaging in regular and vigorous physical activity increased 31 percent between 1989-1991 (9.0%) and 1998-2000 (11.8%) (p<.001).

Figure 20: Physical Activity Among Nebraska Adults



	Moderate PA*	Vigorous PA*	Recommended PA*	Regular Walking**	Regular Strengthening Exercise**
Sufficient Activity	24.2%	16.3%	34.1%	40.4%	31.9%
Insufficient Activity	44.5%	11.5%	38.9%	36.5%	7.8%
Inactive	31.3%	72.2%	26.9%	23.1%	60.3%

Note: See indicator definitions under the appropriate sub-headings within this chapter
*Source: 2001 Nebraska Behavioral Risk Factor Survey
**Source: 2003 Nebraska Adult Tobacco/Social Climate Survey

Recommended Moderate Physical Activity among Nebraska Adults, 2001[5]

Indicator Definition

Recommended Moderate Physical Activity represents the percentage of adults that engage in moderate physical activity for 30 or more minutes on 5 or more days per week.

Nebraska HP2010 Objective: 30 percent (#22-2)

2001 Highlights

- Approximately 1 in every 4 Nebraska adults (24.2%) engages in recommended moderate physical activity (Figure 20). In contrast, this indicates that 3 in every 4 Nebraska adults, an estimated 959,000 to 996,000 adults, do not engage in recommended moderate physical activity.

Trends

- Between 1989 and 2000, inconsistent variation in regular and sustained physical activity occurred, indicating no overall change during the time period.

Recommended Physical Activity among Nebraska Adults, 2001[5]

Indicator Definition

Recommended Physical Activity represents the percentage of adults that engage in moderate physical activity (for 30 or more minutes on 5 or more days per week) or vigorous physical activity (for 20 or more minutes on 3 or more days per week).

Nebraska HP2010 Objective: None Established

2001 Highlights

- Approximately 1 in every 3 Nebraska adults (34.1%) engages in recommended physical activity (Figure 20). However, in contrast, more than 1 in every 4 Nebraska adults (26.9%) does not engage in any moderate or vigorous physical activity while 2 in every 5 (38.9%) engage in an insufficient amount. It is estimated that between 830,000 and 870,000 Nebraska adults fail to engage in recommended physical activity.

Trends

- Between 1989 and 2000, recommended physical activity has remained stable.

Compared to the Nation in 2002[19]

- Nebraska adults' rank 50th lowest in recommended physical activity among all 50 states and the District of Columbia (interquartile range 43.8% to 50.7%).
- Compared to bordering states, Nebraska adults are less likely than adults in all six bordering states to engage in recommended physical activity.

Descriptive Analysis of Recommended Physical Activity

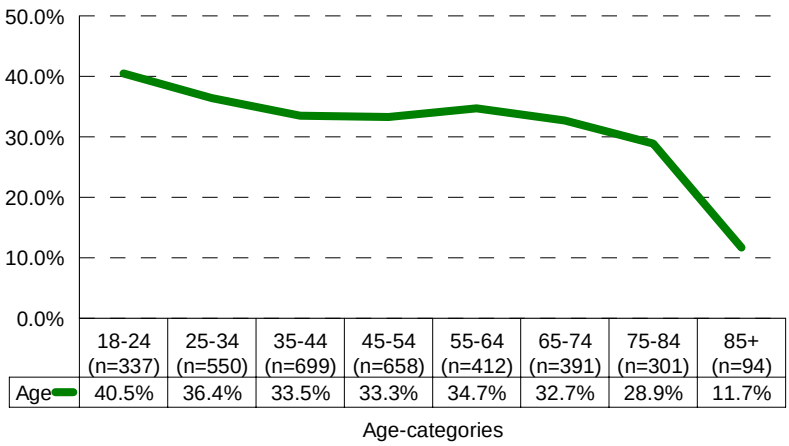
Age

- Among Nebraska adults, there is a negative linear relationship between age and recommended physical activity, indicating that younger adults are more likely than older adults to engage in recommended physical activity (Figure 21).

Gender

- While male adults in Nebraska appear slightly more likely than female adults in Nebraska to engage in recommended physical activity, 35.7 percent and 32.6 percent respectively, the difference is non-significant.
- Although an overall gender difference does not exist for recommended physical activity, a difference does exist among older adults. Among Nebraska adults aged 65 years and older, males are 26.2 percent more likely than females to engage in recommended physical activity (p<.05).

Figure 21: Recommended Physical Activity* Among NE Adults by Age, 2001



*Adults that engage in sufficient moderate activity, sufficient vigorous activity, or both
Listwise n=3,442, 257 missing cases (6.9%)
Source: 2001 Nebraska Behavioral Risk Factor Survey

Education & Income

- Nebraska adults with high education and income are far more likely than Nebraska adults with low education and income to engage in recommended physical activity. These differences occur among Nebraska adults aged 18-35 years (relative risk 1.4), aged 35-64 years (relative risk 1.3), and aged 65 years and older (relative risk 1.6).

Race/Ethnicity

- African American and Hispanic adults in Nebraska are 20 percent and 18 percent less likely than White adults respectively to engage in recommended physical activity.

Urban/Rural

- Among Nebraska adults, there is no difference in recommended physical activity between Nebraska adults living inside and outside of Nebraska's three urban metropolitan counties (Douglas, Lancaster, and Sarpy).

Regular Walking among Nebraska Adults, 2003[20]

Indicator Definition

Regular Walking represents the percentage of adults that walk for 30 or more minutes on 5 or more days per week for recreation, exercise, to get to and from places, or for any other reason.

Nebraska HP2010 Objective: None available

2003 Highlights

- Approximately 2 in every 5 Nebraska adults (40.4%) engages in regular walking (Figure 20). In contrast, this indicates that 3 in every 5 Nebraska adults, or an estimated 752,000 to 785,000 Nebraska adults, do not engage in regular walking. More specifically, nearly 1 in every 4 Nebraska adults (23.1%) does not walk for at least 10 minutes at a time during an average week.

Descriptive Analysis of Regular Walking

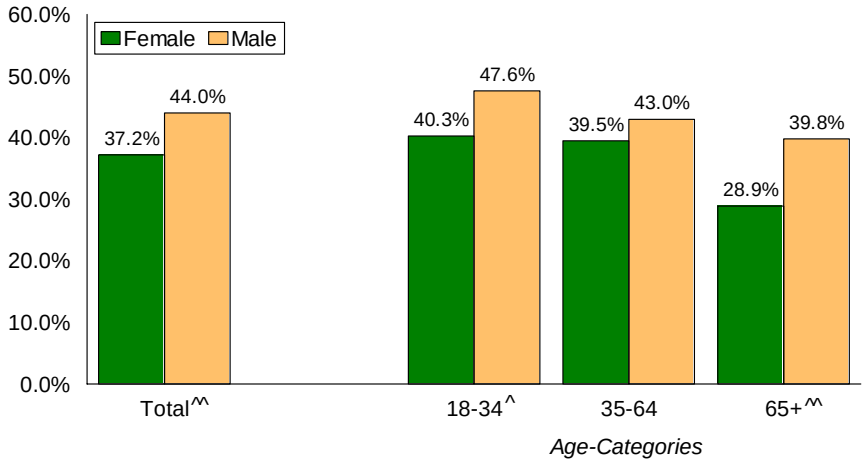
Age

- There is a negative linear association between age and regular walking, indicating that younger adults are more likely than older adults to engage in regular walking. The most dramatic declines in regular walking occur among Nebraska adults aged 75 years and older.

Gender

- Male adults in Nebraska are 18 percent more likely than female adults in Nebraska to engage in regular walking, 44.0 percent and 37.2 percent respectively (p<.001) (Figure 22). The most dramatic gender disparity occurs among Nebraska adults aged 65 years and older where males are 36 percent more likely than females to engage in regular walking, 39.3 percent and 28.9 percent respectively (p<.001).

Figure 22: Regular Walking*
Among Nebraska Adults by Gender and Age, 2003



*Adults that walk for 30 or more minutes on 5 or more days during an average week
Gender difference is significant at the ^.01 level or ^^.001 level
Source: 2003 Nebraska Adult Tobacco/Social Climate Survey

Education & Income

- Among Nebraska adults aged 65 years and older, adults with low education and income (28.9%) are 1.6 times less likely than adults with high education and income (45.7%) to engage in regular walking (p<.001).

Race/Ethnicity

- No significant racial/ethnic disparities exist in regular walking among Nebraska adults. African American adults in Nebraska (36.2%) appear slightly less likely than White adults in Nebraska (40.5%) to engage in regular walking, however the difference was non-significant.

Urban/Rural

- Nebraska adults living inside of Nebraska's three urban-metropolitan counties (Douglas, Lancaster, and Sarpy) are 13 percent more likely than adults living outside of Nebraska's three urban-metropolitan counties to engage in regular walking (p<.001).

Regular Strengthening Exercise among Nebraska Adults, 2003[20]

Indicator Definition

Regular Strengthening Exercise represents the percentage of adults that do any activities to increase muscle strength or tone such as lifting weights, pull-ups, push-ups, or sit-ups on 3 or more days per week.

Nebraska HP2010 Objective: None available

2003 Highlights

- Approximately 1 in every 3 Nebraska adults (31.9%) engages in regular strengthening exercise. In contrast, 7.8 percent engage in strengthening exercise on one or two days per week while 60.3 percent do not engage in any strengthening exercise.

Descriptive Analysis of Regular Strengthening Exercise

Age

- There is a negative linear association between age and regular strengthening exercise, indicating that younger adults are more likely than older adults to engage in regular strengthening exercise.

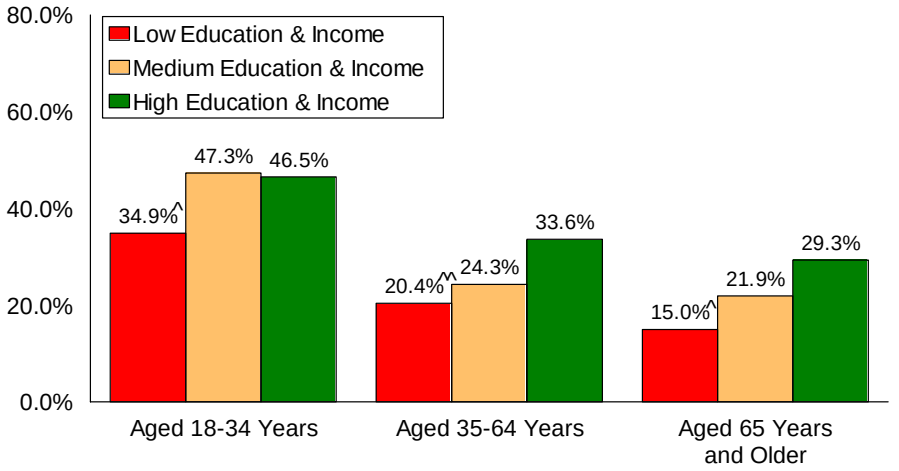
Gender

- Male adults in Nebraska are 41 percent more likely than female adults in Nebraska to engage in regular strengthening exercise, 37.7 percent and 26.8 percent respectively (p<.001). The most dramatic gender disparity occurs among younger Nebraska adults aged 18-24 years where males are 76 percent more likely than females to engage in regular strengthening exercise, 65.5 percent and 37.2 percent respectively (p<.001).

Education & Income

- Nebraska adults with high education and income are more likely than adults with low education and income to engage in regular strengthening exercise among adults aged 18-34 years (relative risk 1.33), aged 35-64 years (relative risk 1.65), and aged 65 years and older (relative risk 1.95) (Figure 23).

Figure 23: Regular Strengthening Exercise* Among Nebraska Adults by Education & Income, 2003**



*Adults that did not engage in any leisure time physical activity (outside of work) during the past 30 days
**Low ed/inc=<$25K income and H.S. or less education, medium ed/inc=neither low nor high ed/inc, high ed/inc=≥$35K income and education beyond high school
^Significantly lower than medium & high ed/inc at .05 level
^^Significantly lower than high ed/inc at .001 level
Listwise n=4929 valid cases, 2090 missing cases (29.8%)
Source: 2003 Nebraska Adult Tobacco/Social Climate Survey

Race/Ethnicity

- Among Nebraska adults, no significant differences in regular strengthening exercise exist between Whites and any racial/ethnic minority population. African American adults in Nebraska (37.6%) appear slightly more likely than White adults in Nebraska (31.5%) to engage in regular strengthening exercise, however the difference was non-significant.

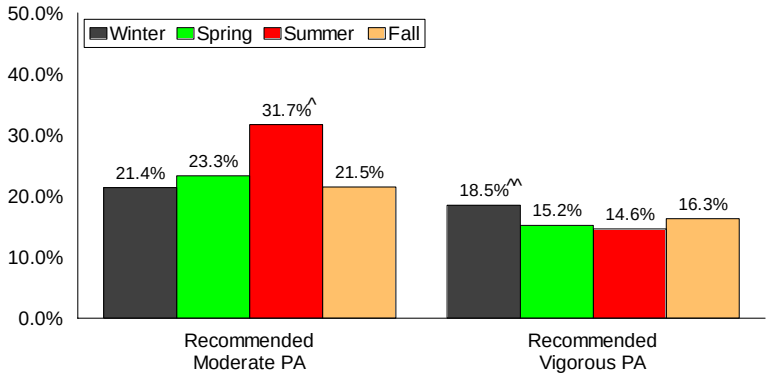
Urban/Rural

- Nebraska adults living inside of Nebraska's three urban-metropolitan counties (Douglas, Lancaster, and Sarpy) are 27 percent more likely than adults living outside of Nebraska's three urban-metropolitan counties to engage in regular strengthening exercise (p<.001).

Seasonal Variation in Physical Activity among Nebraska Adults, 2001[5]

- Nebraska adults are more likely to engage in recommended moderate physical activity during the summer season (of July, Aug., and Sept.) than during any other season (Figure 24).
- In contrast, Nebraska adults are more likely to engage in recommended vigorous physical activity during the winter season (of Jan., Feb., and March) (18.5%) than they are during the summer season (14.6%) (p<.05).

Figure 24: Seasonal Variation* in Physical Activity Among Nebraska Adults, 2001



*Seasons include respondents that completed the survey in the winter (Jan. Feb. March), Spring (April, May, June), Summer (July, Aug., Sept.) and Fall (Oct., Nov., Dec.)
^Significantly higher than all other seasons at the .001 level
^^Significantly higher than the summer season at the .05 level
Source: 2001 Nebraska Behavioral Risk Factor Survey

Occupational Inactivity among Nebraska Adults, 2001[5]

Indicator Definition:

Occupational Inactivity represents the percentage of adults that mostly sit or stand at their work, among Nebraska adults that are employed.

Nebraska HP2010 Objective: None Established

2001 Highlights

- Among Nebraska adults that are employed:
  - More than 3 in every 5 (62.9%) have inactive jobs (requiring mostly sitting or standing at work)
  - 1 in every 5 (21.0%) have jobs that require mostly walking,
  - and 1 in every 6 (16.0%) have jobs requiring mostly heavy labor or physically demanding work

Descriptive Analysis of Occupational Physical Activity, 2001

Age

- Nebraska adults aged 18-24 years and 65 years and older that are employed, are less likely to have inactive jobs, and more likely to have jobs that require mostly walking.

Gender

- Among Nebraska adults that are employed, females are 27.9 percent more likely than males to have inactive jobs, 71.1 percent and 55.6 percent respectively (p<.001) (Figure 25). In contrast, males and females are equally likely to have jobs that require mostly walking, however males (23.6%) are 3.1 times more likely than females (7.6%) to have jobs that require mostly heavy labor or physically demanding work (Figure 25).

Education & Income

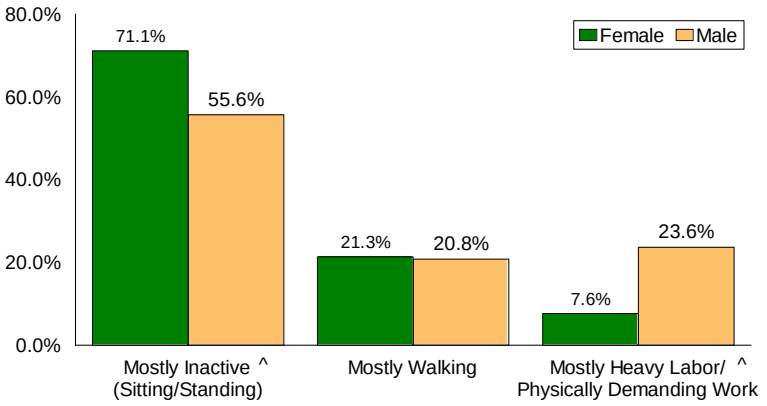
- Among Nebraska adults that are employed, as level of education increases, occupational inactivity increases, indicating that the more educated adults are more likely to have jobs that require mostly sitting or standing.

- Among Nebraska adults that are employed, college graduates are more likely than those with less than a high school education to have inactive jobs among those aged 18-34 years (relative risk 1.8) and aged 35-64 years (relative risk 1.4).

Race/Ethnicity

- Among Nebraska adults that are employed, Whites are 12 percent more likely than African Americans and 14 percent more likely than Hispanics to have inactive jobs.

Figure 25: Occupational Physical Activity Among Nebraska Adults that are Employed by Gender, 2001



^Significant difference at the .001 level
Listwise n=2,210
Source: 2001 Nebraska Behavioral Risk Factor Survey

Urban/Rural

- Among Nebraska adults that are employed, adults living inside Nebraska's three urban metropolitan counties (Douglas, Lancaster, and Sarpy) are 20.7 percent more likely than adults living outside of Nebraska's three urban metropolitan counties to have inactive jobs, 69.3 percent and 57.4 percent respectively.
- In contrast, among Nebraska adults that are employed, adults living outside Nebraska's three urban metropolitan counties are twice as likely as adults living inside Nebraska's three urban metropolitan counties to have jobs that require mostly heavy labor or physically demanding work, 21.1 percent and 10.4 percent respectively.

Physical Activity among Nebraska High School Students[10]

Youth Physical Education Recommendation:
The National Association for Sport and Physical Education (NASPE) recommends that adolescents at the middle and high school level engage in 225 minutes of physical education per week (including a mixture of structured and unstructured vigorous and moderate physical activity) and attend weekly physical education that provides exercises that improve strength and flexibility at least 3 times per week.

Indicator Definitions:

Sufficient Moderate Physical Activity represents the percentage of students that engage in 30 or more minutes of activity that did not make them sweat or breathe hard on five or more of the seven days preceding the survey.

Sufficient Vigorous Physical Activity represents the percentage of students that engage in 20 or more minutes of activity that made them sweat and breathe hard on three or more of the seven days preceding the survey.

Regular Strengthening Exercise represents the percentage of students that did exercises to strengthen or tone their muscles on three or more of the seven days preceding the survey.

Sufficient Physical Activity In All Its Forms represents the percentage of students that engaged in sufficient vigorous activity, sufficient moderate activity, and regular strengthening exercises during the seven days preceding the survey.

Insufficient Physical Activity represents the percentage of students that did not participate in sufficient vigorous activity and did not participate in sufficient moderate activity during the seven days preceding the survey.

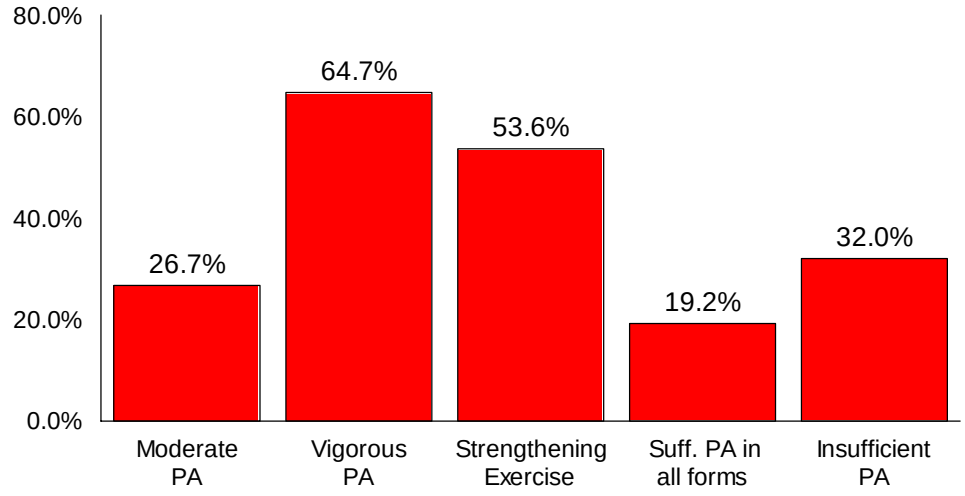
Nebraska HP2010 Objectives:

- Sufficient Moderate Physical Activity: 35 percent (#22-6)
- Sufficient Vigorous Physical Activity: 85 percent (#22-7)

2003 Highlights (Figure 26)

- 1 in every 4 students (26.7%) engage in sufficient moderate physical activity (30 or more minutes of activity that did not make them sweat or breathe hard on five or more of the seven days preceding the survey).
- 2 in every 3 students (64.7%) engage in sufficient vigorous physical activity (20 or more minutes of activity that made them sweat and breathe hard on three or more of the seven days preceding the survey).
- Slightly more than half of all students (53.6%) engage in regular strengthening exercises (did exercises to strengthen or tone their muscles on three or more of the seven days preceding the survey).
- Collectively, participation in sufficient levels of physical activity (in all its forms) is particularly low. Only 1 in every 5 students (19.2%) engages in sufficient physical activity (indicating that they engaged in sufficient vigorous activity, sufficient moderate activity, and regular strengthening exercises during the seven days preceding the survey).
- In contrast, approximately 1 in every 3 students (32.0%) does not engage in a sufficient amount of physical activity (insufficient physical activity).

Figure 26: Percentage of Nebraska High School Students Participating in Sufficient Levels of the Following Activities, 2003



Note: See indicator definitions under the appropriate sub-headings within this chapter
PA=Physical Activity
Source: 2003 Nebraska Youth Risk Behavior Survey

Physical Activity Trends:

- Between the early 1990s and 2003, participation in sufficient vigorous physical activity among Nebraska high school students declined significantly, while participation in regular strengthening exercises has remained stable. In particular, the percentage of students engaging in sufficient vigorous physical activity declined 7 percent from between 1991 (69.6%) and 2003 (64.7%) ($p<.001$).

Compared to the Nation in 2003[11]

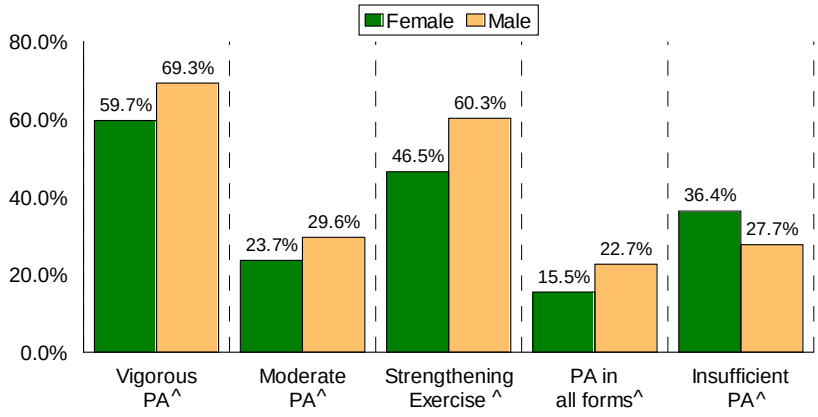
- While high school students in Nebraska appear slightly more likely than high school students nationally to engage in sufficient moderate physical activity, sufficient vigorous physical activity, and regular strengthening exercise, the differences are non-significant.

Descriptive Analysis of physical activity levels, 2003

Gender (Figure 27)

- Male students were 47 percent more likely than female students to engage in sufficient physical activity (in all forms) during the seven days preceding the survey, 22.7 percent and 15.5 percent respectively (p<.001).
- The greatest (male to female) gender disparity in physical activity occurs in the participation of regular strengthening exercise (60.3% and 46.5% respectively, relative risk 1.30) followed by participation in sufficient moderate physical activity (29.6% and 23.7% respectively, relative risk 1.25) and sufficient vigorous physical activity (69.3% and 59.7% respectively, relative risk 1.16) (all sig at p<.001).

Figure 27: Percentage of Nebraska High School Students Participating in Sufficient Levels of the Following Activities By Gender, 2003



Note: See indicator definitions under the appropriate sub-headings within this chapter
PA=Physical Activity
^Gender difference significant at the .001 level
Source: 2003 Nebraska Youth Risk Behavior Survey

Grade

- Across all forms of physical activity, as grade level increases, physical activity decreases. Students in grade 9 (22.3%) were more likely than students in grades 11 (17.2%) and 12 (16.6%) to engage in sufficient physical activity (in all forms) during the seven days preceding the survey (sig at the .05 and .01 level respectively).

Sports Team Participation among Nebraska High School Students[10]

Indicator Definition

Regular Sports Team Participation represents the percentage of students that participated on two or more sports teams during the 12 months preceding the survey.

2003 Highlights

- Approximately 3 in every 5 Nebraska high school students (62.0%) participated on one or more sports teams during the 12 months preceding the survey, while, nearly 2 in every 5 did not participate on any sports teams during the 12 months preceding the survey.
- Approximately 2 in every 5 students (41.9%) engage in regular sports team participation.

Trends in Sports Team Participation

- The trend in regular sports team participation among Nebraska high school students is declining.

Between 1993 and 2003, regular sports team participation declined 15.2 percent, from 49.4 percent to 41.9 percent respectively (p<.001).

Compared to the Nation in 2003[11]

- High school students in Nebraska are 8 percent more likely than high school students nationally to participate on one or more sports teams during the seven days preceding the survey, 62.0 percent and 57.6 percent respectively (p<.05).

Descriptive Analysis of Sports Team Participation, 2003

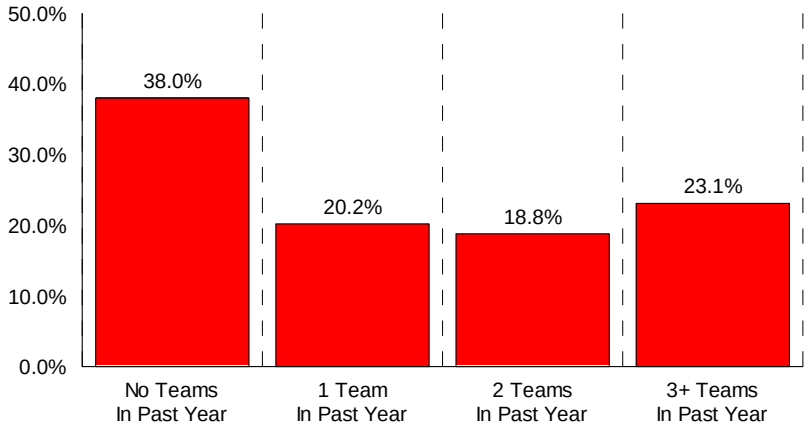
Gender

- Nearly half of all male students (48.2%) engage in regular sports team participation compared to approximately 1 in every 3 female students (35.2%), indicating that male students are 37 percent more likely than female students to engage in regular sports team participation (p<.001).

Grade

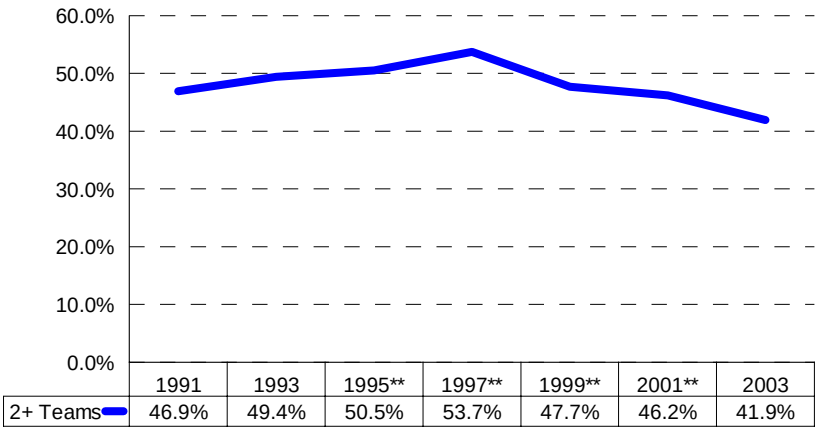
- As grade level increases, sports team participation decreases. Students in grade 9 (48.2%) are more likely than students in grades 10 (42.2%), 11 (38.0%), and 12 (38.3%) to engage in regular sports team participation (p<.05, .001, and .001 respectively).

Figure 28: Sports Team Participation Among Nebraska High School Students, 2003



Listwise n=2,751 valid cases, 182 missing cases (6.2%)
Source: 2003 Nebraska Youth Risk Behavior Survey

Figure 29: Trends in Regular Sports Team Participation* Among Nebraska High School Students, 1991-2003



	1991	1993	1995**	1997**	1999**	2001**	2003
2+ Teams	46.9%	49.4%	50.5%	53.7%	47.7%	46.2%	41.9%

*Students that reported participating on two or more sports teams during the 12 months preceding the survey
**Data were not weighted due to a low respone rate
Source: 2003 Nebraska Youth Risk Behavior Survey

Physical Education Class Participation among Nebraska High School Students[10]

Indicator Definitions

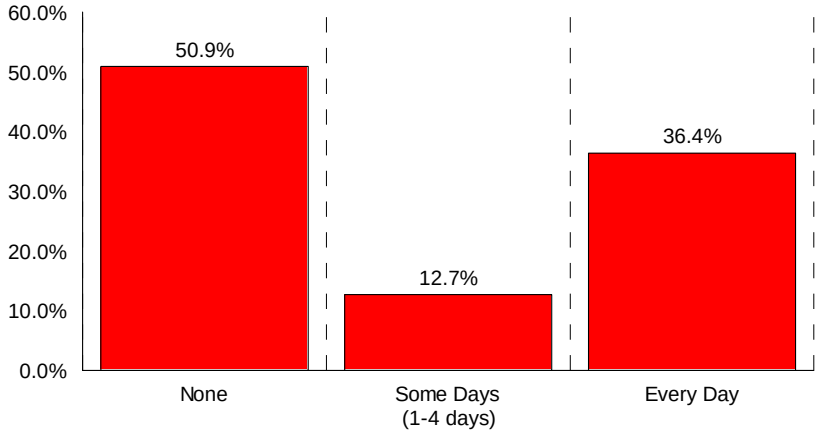
Daily PE represents the percentage of students that attend PE class on 5 days during an average week when they are in school.

Quality Daily PE represents the percentage of students that attend PE class on 5 days during an average week when they are in school and participate in exercise or sports for more than 20 minutes during an average PE class.

2003 Highlights

- Half of all Nebraska high school students attend physical education (PE) class during an average school week, however just slightly more than 1 in every 3 students (36.4%) attend PE class daily.
- Among students enrolled in PE class, approximately 9 in every 10 (87.3%) exercise for more than 20 minutes during an average PE class.
- Just 1 in every 3 Nebraska high school students (33.3%) receives quality daily PE.

Figure 30: Average Weekly PE Class Attendance Among Nebraska High School Students, 2003



Listwise n=2,560 valid cases, 373 missing cases (12.7%)
Source: 2003 Nebraska Youth Risk Behavior Survey

Trends in PE class

- Since the early 1990s, self-reported participation in quality daily PE class among Nebraska high school students has increased. Between 1993 and 2001, the percentage of Nebraska high school students receiving quality daily PE increased 26.1 percent, from 26.4 percent to 33.3 percent respectively (sig at .001 level).

Compared to the Nation in 2003[11]

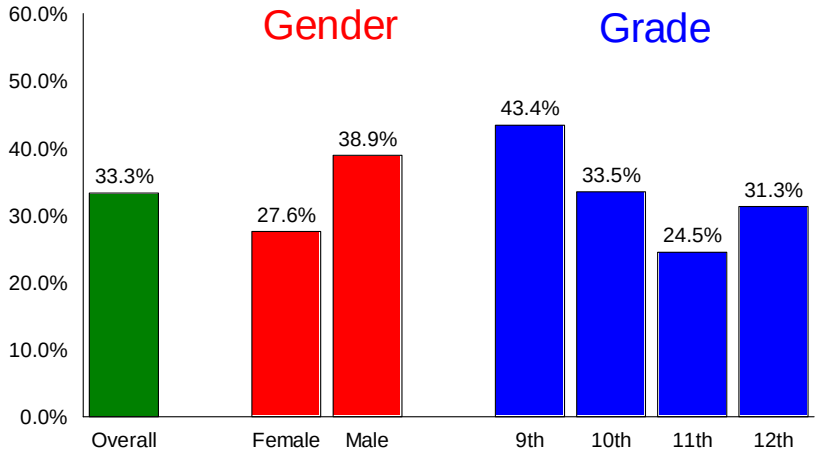
- High school students in Nebraska are 28 percent more likely than high school students nationally to attend PE class daily, 36.4 percent and 28.4 percent respectively (p<.001).

Descriptive Analysis of PE Class Participation, 2003

Gender

- Male students are 40.9 percent more likely than female students to receive quality daily PE, 38.9 percent to 27.6 percent respectively (p<.001).

Figure 31: Quality Daily PE Class* Among Nebraska High School Students by Gender and Grade, 2003



*Students that reported attending PE class daily and exercising for >20 minutes during an average PE class
Source: 2003 Nebraska Youth Risk Behavior Survey

Grade

- As grade level increases, PE class participation decreases. Students in grade 9 (43.4%) are more likely than students in grades 10 (33.5%), 11 (24.5%), and 12 (31.3%) to receive quality daily PE (p<.001 respectively).
- Likely due to graduation requirements, students in grade 12 are more likely than students in grade 11 to receive quality daily PE, 31.3 percent and 24.5 percent respectively (p<.01).

High Blood Pressure

Introduction

The health consequences of high blood pressure, including increased risk for heart disease and stroke, are serious[21]. As a result, the CDC emphasizes the importance of early detection, treatment, and control of high blood pressure[21]. In 2001, an estimated 50 million Americans (or 1 in every 5) had high blood pressure while more than 46,000 died from it[22]. Unfortunately, of those with high blood pressure, 30 percent do not even know they have it while an additional 25 percent are on medication but do not have their high blood pressure under control[23].

Diagnosed High Blood Pressure among Nebraska Adults, 2001[5]

Indicator Definition

Diagnosed High Blood Pressure represents the percentage of adults that have ever been told by a doctor, nurse, or other health professional that their blood pressure is high.

Nebraska HP2010 Objective: 16 percent (#12-9)

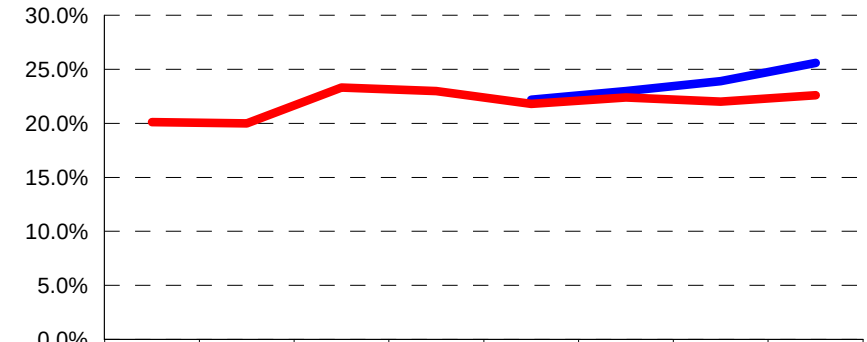
2001 Highlights

- Nearly 1 in every 4 (22.6%), or an estimated 274,000 to 309,000 Nebraska adults have diagnosed high blood pressure.

Trends

- Between 1989 and 2001, the trend in diagnosed high blood pressure among Nebraska adults has remained virtually unchanged (Figure 32).

Figure 32: Diagnosed High Blood Pressure* Among NE and U.S. Adults, 1989-2001



	1989	1990	1991	1993	1995	1997	1999	2001^
Nebraska	20.1%	20.0%	23.3%	23.0%	21.8%	22.4%	22.0%	22.6%
Nation					22.2%	23.0%	23.9%	25.6%

*Adults that were ever told by a doctor, nurse, or other health professional that they have high blood pressure
^The 2001 questionnaire no longer filters for blood pressure screening, making the denominator value different from years 1989-1999.
Sources: Nebraska Behavioral Risk Factor Surveillance System; National Behavioral Risk Factor Surveillance System <www.cdc.gov/brfss.index.htm>

Compared to the Nation in 2001[2]

- Nebraska ranks 8th lowest in diagnosed high blood pressure among 54 U.S. states and territories (interquartile range 24.0% to 25.6%).
- Compared to bordering states, Nebraska adults are less likely than adults in Iowa (25.5%) and Missouri (26.5%) to have diagnosed high blood pressure (p<.01 and .001).

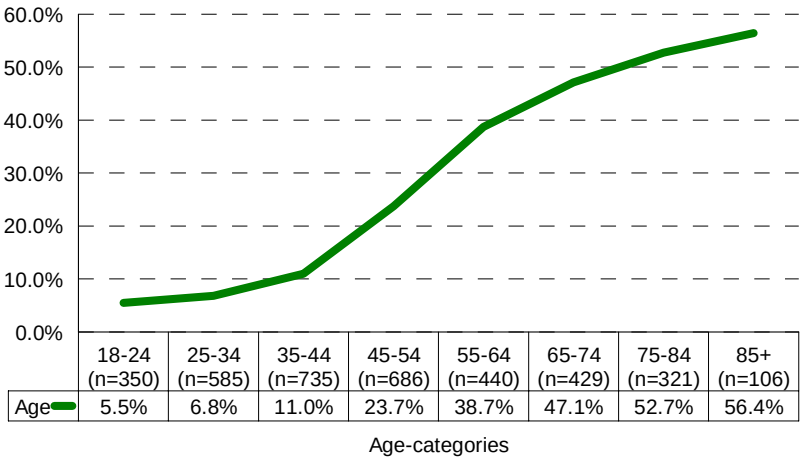
Descriptive Analysis of Diagnosed High Blood Pressure, 2001

Age

- Among Nebraska adults, there is a positive linear relationship between age and diagnosed high blood pressure, indicating that older adults are more likely than younger adults to have diagnosed high blood pressure (Figure 33).

- The most dramatic increases in diagnosed high blood pressure occur among middle age adults where adults aged 45-54 years are 2.2 times more likely than adults aged 35-44 years and adults aged 55-64 years are 1.6 times more likely than adults aged 45-54 years to have diagnosed high blood pressure (Figure 33).

Figure 33: Diagnosed High Blood Pressure* Among NE Adults by Age, 2001



*Adults that were ever told by a doctor, nurse, or other health professional that they have high blood pressure
Missing data=47 cases (1.3%)
Source: 2001 Nebraska Behavioral Risk Factor Survey

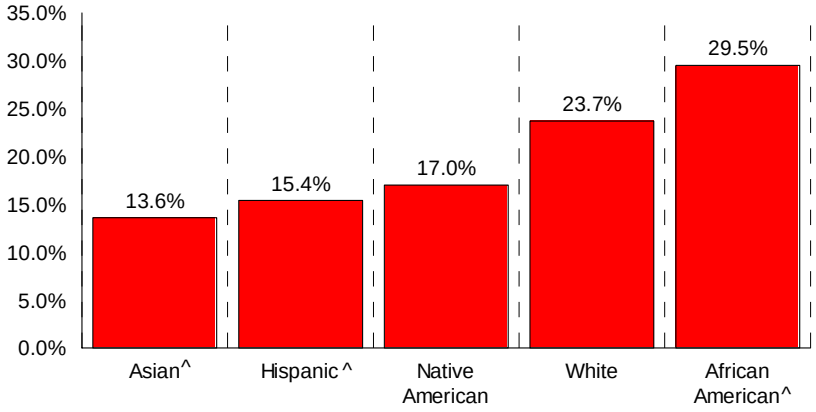
Gender

- While the percentage of female adults in Nebraska with diagnosed high blood pressure appears slightly higher than the percentage for males, 23.7 percent and 21.5 percent respectively, this difference is non-significant.

Education & Income

- Level of education and income is associated with diagnosed high blood pressure among middle age adults in Nebraska (aged 45-64 years), however, there is no significant association among younger or older adults.
- Among middle age Nebraska adults, those with high education and income are 31 percent less likely than those with medium education and income and 42 percent less likely than those with low education and income to have diagnosed high blood pressure (p<.01 and .001 respectively).

Figure 34: Diagnosed High Blood Pressure* Among Nebraska Adults by Race/Ethnicity, 2001



*Adults that were ever told by a doctor, nurse, or other health professional that they have high blood pressure
Note: racial categories include non-hispanic only
^Difference between race/ethnicity and white is significant at the .05 level
Missing data=117 cases (1.6%)
Source: Nebraska Behavioral Risk Factor Survey & Nebraska Minority Over-sample Risk Factor Survey

Race/Ethnicity

- Compared to Whites, African Americans are 25 percent more likely to have diagnosed high blood pressure, 29.5 percent and 23.7 percent respectively (p<.01) (Figure 34). In contrast, Asians (13.6%) and Hispanics (15.4%) are less likely than Whites to have diagnosed high blood pressure (p<.05 and .001 respectively) (Figure 34).

Urban/Rural

- When controlling for age, there is no difference in diagnosed high blood pressure between Nebraska adults living inside and outside of Nebraska's three urban metropolitan counties (Douglas, Lancaster, and Sarpy).

High Blood Pressure Medication among Nebraska Adults, 2001[5]

Indicator Definition

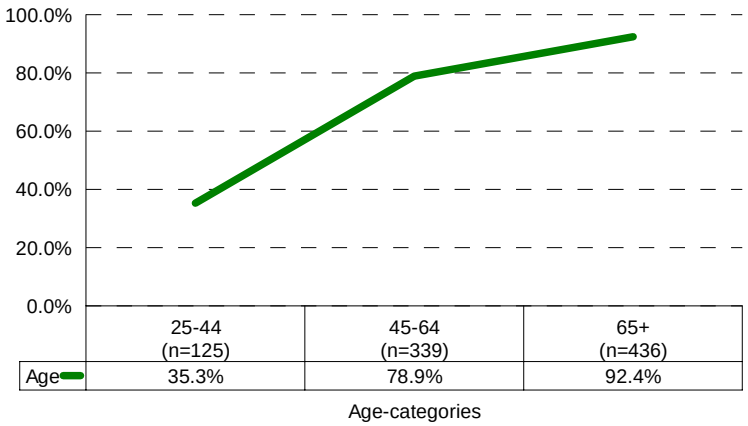
High Blood Pressure Medication represents the percentage of Nebraska adults that are currently taking medication for their high blood pressure, among Nebraska adults with diagnosed high blood pressure.

Nebraska HP2010 Objective: None Established

2001 Highlights

- Among Nebraska adults that have diagnosed high blood pressure, 3 in every 4 (76.2%) are currently taking medication for their high blood pressure.

Figure 35: Taking High Blood Pressure Medication* Among NE Adults That Have Diagnosed High Blood Pressure by Age, 2001



*Adults that are currently taking medication for their high blood pressure, among adults with diagnosed high blood pressure
Source: 2001 Nebraska Behavioral Risk Factor Survey

Descriptive Analysis of High Blood Pressure Medication, 2001

Age

- As age increases, blood pressure medication use increases (among Nebraska adults with diagnosed high blood pressure) (Figure 35). Among Nebraska adults with diagnosed high blood pressure, more than 9 in every 10 aged 65 years and older (92.4%) are currently taking medication for their high blood pressure compared to just 1 in every 3 adults aged 25-44 years (35.3%).

Gender

- While male and female adults in Nebraska are equally likely to have diagnosed high blood pressure, among those with diagnosed high blood pressure, females are 17 percent more likely than males to be currently taking medication for their high blood pressure, 81.6 percent and 69.8 percent respectively ($p<.001$). This disparity is most prominent among Nebraska adults aged 45-64 years (87.1% female and 70.9% male, relative risk 1.23) ($p<.001$).

Education & Income

- Among Nebraska adults with diagnosed high blood pressure, the percentage of adults currently taking medication for their high blood pressure does not differ by education and income.

Race/Ethnicity

- Among Nebraska adults with diagnosed high blood pressure, African Americans (21.4%) and Whites (23.0%) are equally likely to be currently taking medication for their high blood pressure while Hispanics (39.6%) are 1.7 times more likely than Whites to be currently taking medication for their high blood pressure ($p<.001$).

Urban/Rural

- Among Nebraska adults with diagnosed high blood pressure, there is no difference in the percentage currently taking medication for their high blood pressure between Nebraska adults living inside and outside of Nebraska's three urban metropolitan counties (Douglas, Lancaster, and Sarpy).

High Blood Cholesterol

Introduction

According to 2001 estimates from the National Health and Nutrition Examination Survey, an estimated 105 million Americans have high blood cholesterol (total cholesterol of 200 mg/dl or higher)[22]. When blood cholesterol levels are high, excess cholesterol is deposited in the arteries, including those of the heart, which can lead to narrowing of the arteries and heart disease[24]. The positive news is that studies among people with heart disease have shown that lowering cholesterol can reduce the risk for dying from heart disease, having a nonfatal heart attack, and needing heart bypass surgery or angioplasty[24].

Current Blood Cholesterol Screening among Nebraska Adults, 2001[5]

Indicator Definition

Current Blood Cholesterol Screening represents the percentage of adults that have had their blood cholesterol checked within the 5 years preceding the survey.

Nebraska HP2010 Objective:
80 percent (#12-15)

2001 Highlights

- Approximately 2 in every 3 Nebraska adults (65.4%) have had a current blood cholesterol screening. In contrast, this indicates that approximately 1 in every 3 (34.6%), or an estimated 426,000 to 466,000 Nebraska adults, have not had a current blood cholesterol screening (Figure 36).

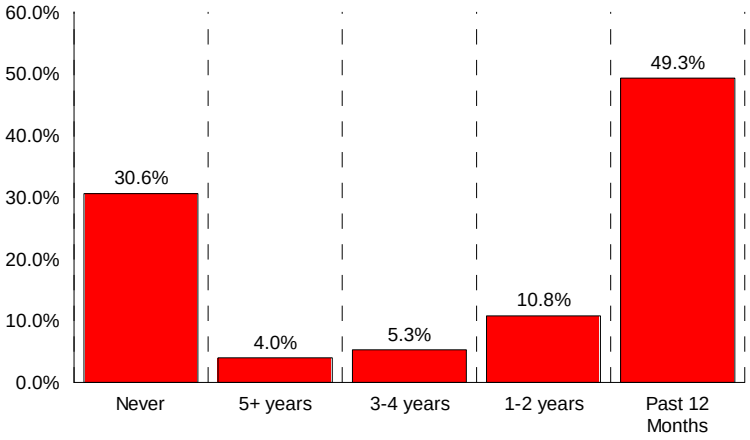
Trends

- Between 1989-2001, current blood cholesterol screening has increased 22 percent among Nebraska adults, from 53.6 percent to 65.4 percent (p<.001) (Figure 37).

Compared to the Nation in 2001[2]

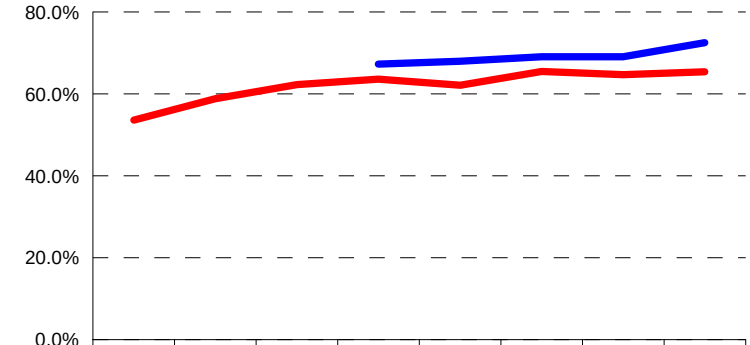
- Nebraska ranks 2nd lowest (only to Guam) in the percentage of adults that have ever had a blood cholesterol screening out of 54 U.S. states/territories (interquartile range 75.3% to 80.3%).

Figure 36: Last Blood Cholesterol Screening Among Nebraska Adults, 2001



n=3,598 valid cases, 101 missing cases (2.7%)
Source: 2001 Nebraska Behavioral Risk Factor Survey

Figure 37: Current Blood Cholesterol Screening* Among NE and U.S. Adults



	1989	1990	1991	1993	1995	1997	1999	2001
Nebraska	53.6%	58.8%	62.3%	63.6%	62.1%	65.5%	64.7%	65.4%
Nation				67.3%	68.0%	69.1%	69.1%	72.5%

*Adults that have had their blood cholesterol checked within the past 5 years
Sources: Nebraska Behavioral Risk Factor Surveillance System; National Behavioral Risk Factor Surveillance System <www.cdc.gov/brfss.index.htm>

- Compared to bordering states, Nebraska adults are less likely than adults in all six bordering states to have ever had their blood cholesterol checked (p<.001).

Descriptive Analysis of Current Blood Cholesterol Screening, 2001

Age

- Among Nebraska adults, there is a positive linear relationship between age and current blood cholesterol screening, indicating that older adults are more likely than younger adults to have had a current blood cholesterol screening.

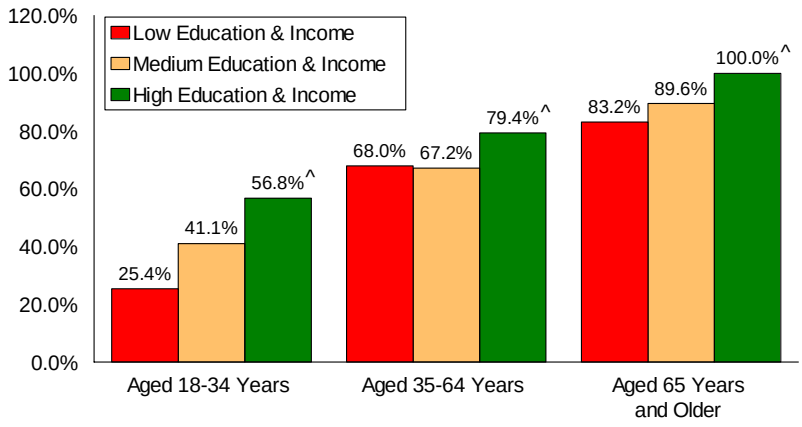
Gender

- Female adults in Nebraska are 11 percent more likely than male adults in Nebraska to have had a current blood cholesterol screening, 68.8 percent and 61.8 percent respectively (p<.001).
- The greatest gender disparity in current blood cholesterol screening occurs among younger adults in Nebraska. Among Nebraska adults aged 18-64 years, close to half of females (46.3%) have had a current blood cholesterol screening, compared to just 1 in every 3 males (36.4%), indicating that females are 27 percent more likely than males to have had a current blood cholesterol screening (p<.01).

Education & Income

- Nebraska adults with high education and income are more likely than Nebraska adults with medium or low income to have had a current blood cholesterol screening (across different age categories) (Figure 38).
- Among Nebraska adults aged 18-34 years, those with high education and income are 1.4 times more likely than those with medium education and income and 2.2 times more likely than those with low education and income to have had a current blood cholesterol screening (p<.001 respectively).

Figure 38: Current Blood Cholesterol Screening* Among Nebraska Adults by Education & Income, 2001**



*Adults that have had their blood cholesterol checked within the past 5 years
**Low ed/inc=<$25K income and H.S. or less education, medium ed/inc=neither low nor high ed/inc, high ed/inc= ≥$35K income and education beyond high school

^Significantly higher than low and medium ed/inc at <.01 level
Listwise n=2,900 valid cases, 799 missing cases (21.6%)
Source: 2001 Nebraska Behavioral Risk Factor Survey

Race/Ethnicity

- White adults in Nebraska (67.6%) are more likely than Asian (56.4%) and Hispanic (51.1%) adults to have had a current blood cholesterol screening (p<.05 and .001 respectively).

Urban/Rural

- Nebraska adults aged 35-64 years living within Nebraska's three urban-metropolitan counties (Douglas, Lancaster, and Sarpy) are 11 percent more likely than adults living outside of Nebraska's three urban-metropolitan counties to have had a current blood cholesterol screening, 77.1 percent and 69.4 percent respectively (sig at .001 level). Differences within both younger and older age-categories are non-significant.

Diagnosed High Blood Cholesterol Among Nebraska Adults, 2001[5]

Indicator Definition

Diagnosed High Blood Cholesterol represents the percentage of adults that have ever been told by a doctor, nurse, or other health professional that their blood cholesterol is high, among those that have ever had their blood cholesterol checked.

Nebraska HP2010 Objective: 17 percent (#12-14)

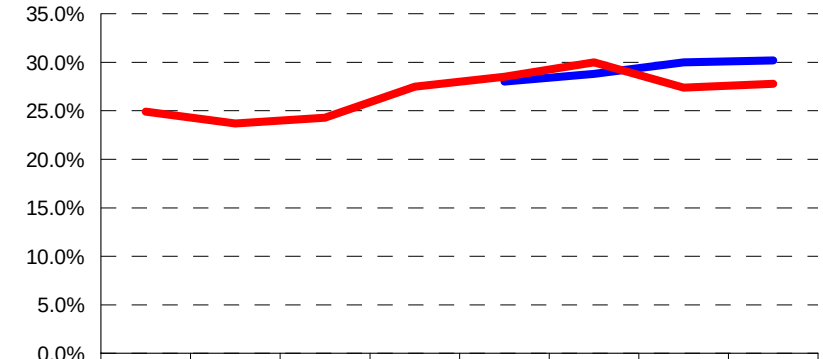
2001 Highlights

- More than 1 in every 4 (27.8%) Nebraska adults, an estimated 337,000 to 380,000, have diagnosed high blood cholesterol.

Trends

- Since around 1990, diagnosed high blood cholesterol among Nebraska adults has increased. Between 1990 and 2001, diagnosed high blood cholesterol increased 17 percent from 23.7 percent to 27.8 percent (p<.05) (Figure 39).

Figure 39: Diagnosed High Blood Cholesterol* Among NE and U.S. Adults



	1989	1990	1991	1993	1995	1997	1999	2001
Nebraska	24.9%	23.7%	24.3%	27.5%	28.5%	30.0%	27.4%	27.8%
Nation					28.0%	28.8%	30.0%	30.2%

*Adults that have ever been told by a doctor, nurse, or health professional that their blood cholesterol is high, among those that have ever had their blood cholesterol checked.
Sources: Nebraska Behavioral Risk Factor Surveillance System; National Behavioral Risk Factor Surveillance System <www.cdc.gov/brfss.index.htm>

Compared to the Nation in 2001[2]

- Nebraska ranks tied for 5th lowest (with South Carolina) in diagnosed high blood cholesterol among 54 U.S. states and territories (interquartile range 29.4% to 31.4%).
- Compared to bordering states, Nebraska adults are less likely than adults in Iowa (30.4%), Missouri (31.3%), and Wyoming (30.5%) to have diagnosed high blood cholesterol (p<.05, .01, and .05 respectively).

Descriptive Analysis of Diagnosed High Blood Cholesterol, 2001

Age

- Among Nebraska adults, there is a positive linear relationship between age and diagnosed high blood cholesterol, indicating that older adults are more likely than younger adults to have diagnosed high blood cholesterol (Figure 40).

Gender

- While the percentage of male adults in Nebraska with diagnosed high blood cholesterol appears slightly higher than the percentage for females, 29.1 percent and 26.6 percent respectively, the difference is non-significant (Figure 41).
- However, among adults 35-64 years of age, male adults in Nebraska are 30 percent more likely than female adults in Nebraska to have high blood cholesterol, 32.1 percent and 24.7 percent respectively (p<.01) (Figure 41).

Education & Income

- There is no association between education and income and diagnosed high blood cholesterol among Nebraska adults.

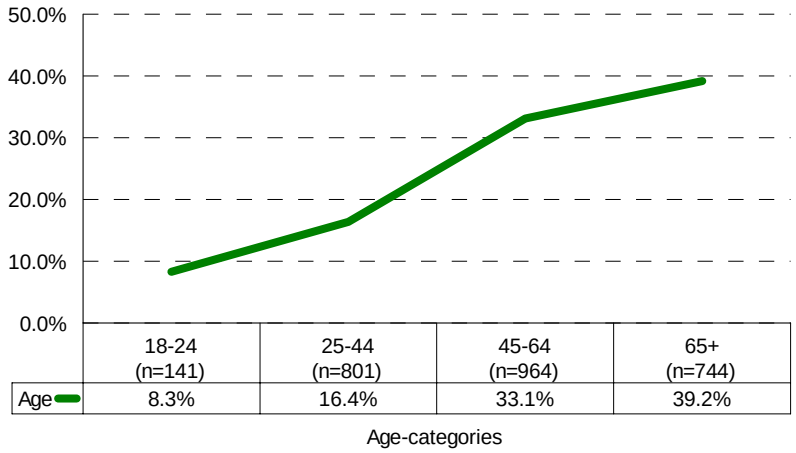
Race/Ethnicity

- Compared to White adults in Nebraska (27.5%), African American (18.7%) and Hispanic (17.5%) adults are less likely to have diagnosed high blood cholesterol (p<.01 and .001 respectively).

Urban/Rural

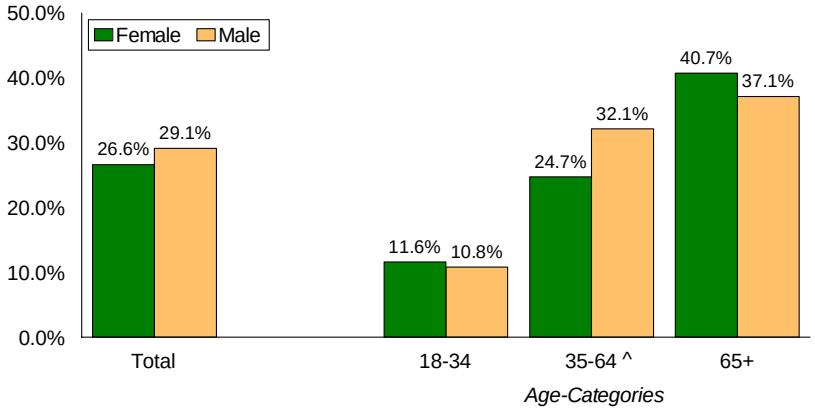
- Nebraska adults aged 35-64 years living outside of Nebraska's three urban-metropolitan counties (Douglas, Lancaster, and Sarpy) are 18.4 percent more likely than adults living within Nebraska's three urban-metropolitan counties to have diagnosed high blood cholesterol, 30.3 percent and 25.6 percent respectively (p<.05). Differences within both younger and older age-categories are non-significant.

Figure 40: Diagnosed High Blood Cholesterol*
Among NE Adults by Age, 2001



*Adults that have ever been told by a doctor, nurse, or health professional that their blood cholesterol is high, among those that have ever had their blood cholesterol checked.
Source: 2001 Nebraska Behavioral Risk Factor Survey

Figure 41: Diagnosed High Blood Cholesterol*
Among Nebraska Adults by Gender and Age, 2001



*Adults that have ever been told by a doctor, nurse, or health professional that their blood cholesterol is high, among those that have ever had their blood cholesterol checked.
^The male percentage is significantly higher than the female percentage at the .01 level
Source: 2001 Nebraska Behavioral Risk Factor Survey

Diabetes

Introduction

The health consequences of diabetes, including increased risk for heart disease and stroke, are serious[25]. Heart disease and stroke contribute to approximately 65 percent of deaths among diabetics, with heart disease being the leading cause of diabetes-related death[25]. Diabetic adults compared to non-diabetic adults have heart disease death rates about 2 to 4 times higher[25]. In addition, stroke risk is 2 to 4 times higher among people with diabetes[25]. Frighteningly, type 2 diabetes, formerly considered "adult onset" diabetes, is now being diagnosed more frequently among children and adolescents[26].

Diabetes Mortality

Between 1990 and 2000, 3,415 deaths among Nebraska residents were directly attributed to diabetes, while an additional 9,852 deaths occurred from other diseases in which diabetes was a contributing factor[27]. The death rate from diabetes in Nebraska increased 50 percent between 1990 and 2000, increasing from 15.0 to 22.2 deaths per 100,000 population[27].

Diabetes Prevalence among Nebraska Adults, 2002[5]

Indicator Definition

Diagnosed diabetes represents the percentage of adults that have ever been told by a doctor that they have diabetes (excluding gestational diabetes).

Nebraska HP2010 Objective: 25 per 1,000 adults (18 and older) (#5-3)

2002 Highlights

- About 1 in every 17 Nebraska adults, or an estimated 66,000 to 84,000 Nebraska adults, has diagnosed diabetes (5.8%).

Trends

- Between 1989 and 2002, the trend in diagnosed diabetes among Nebraska adults has remained virtually unchanged at about 5 percent.

Compared to the Nation in 2002[2]

- Nebraska adults rank tied for 9th lowest (with Hawaii, Massachusetts, and Washington) in diagnosed diabetes among 54 U.S. states and territories (interquartile range 5.9% to 7.6%).
- Compared to bordering states, Nebraska adults are more likely than adults in Colorado (4.4%) to have diagnosed diabetes ($p<.01$), while less likely than adults in Missouri (7.3%) to have diagnosed diabetes ($p<.01$).

Descriptive Analysis of Diagnosed Diabetes, 2002

Age

- Among Nebraska adults, there is a positive linear relationship between age and diagnosed diabetes, indicating that older adults are more likely than younger adults to have diagnosed diabetes. There is however, a sharp decline in diagnosed diabetes among adults aged 85 years and older, likely resulting from diabetic death prior to age 85.

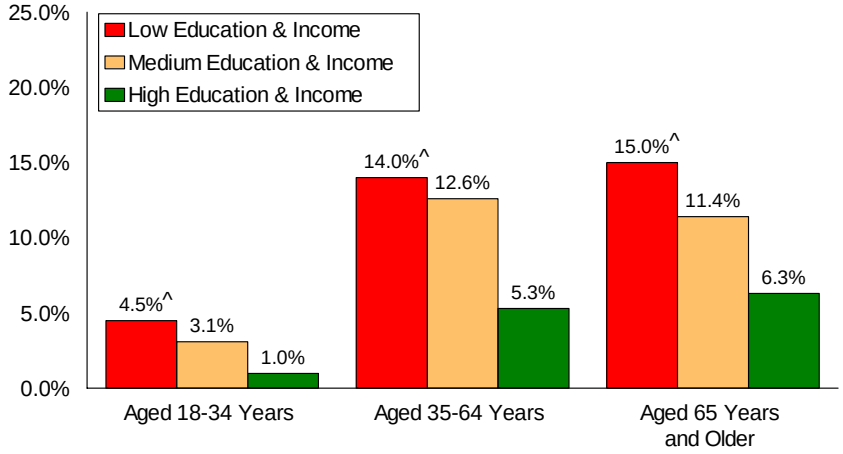
Gender

- While the percentage of male adults in Nebraska with diagnosed diabetes appears slightly higher than the percentage for females, 6.1 percent and 5.6 percent respectively, this difference is non-significant.
- There is however a significant gender difference among Nebraska adults aged 35-64 years, indicating that males are 56 percent more likely than females to have diagnosed diabetes, 7.8 percent and 5.0 percent respectively (p<.01).
- In addition to the 5.6 percent of Nebraska females with diagnosed diabetes, 1.3 percent were diagnosed with gestational diabetes (indicating that they were diagnosed only during pregnancy).

Education & Income

- As level of education and income increase, diagnosed diabetes decreases among Nebraska adults. Nebraska adults with low education and income are more likely than adults with high education and income to have diagnosed diabetes among those aged 25-44 years (relative risk 4.5), aged 45-64 years (relative risk 2.6), and aged 65 years and older (relative risk 2.4).

Figure 42: Diagnosed Diabetes*
Among Nebraska Adults by Education & Income, 2002**



*Adults that have been told by a doctor that they have diabetes (excluding gestational diabetes)
**Low ed/inc=<$25K income and H.S. or less education, medium ed/inc=neither low nor high ed/inc, high ed/inc=≥$35K income and education beyond high school

^Significantly lower than high education and income at the .05 level
Listwise n=3715 valid cases, 668 missing cases (15.2%)
Source: 2002 Nebraska Behavioral Risk Factor Survey

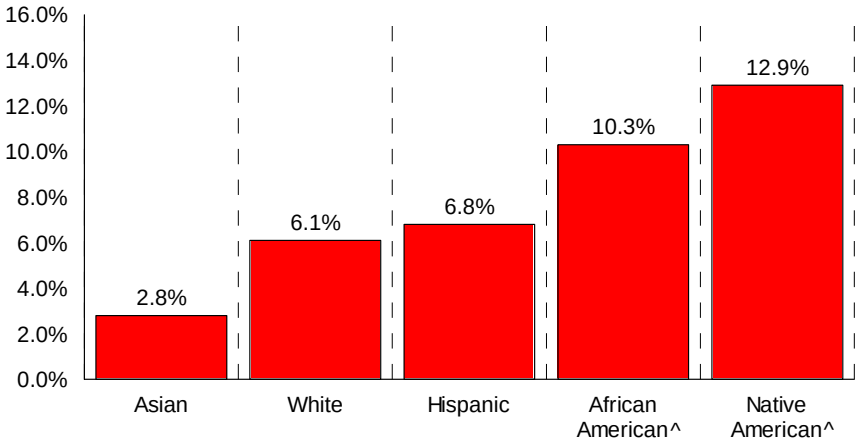
Race/Ethnicity Highlights from 2001 & 2002 (combined)

- African American and Native American adults in Nebraska are 1.7 and 2.1 times more likely than White adults respectively to have diagnosed diabetes (p<.001 and .01 respectively).

Urban/Rural

- There is no difference in diagnosed diabetes between Nebraska adults living inside and outside of Nebraska's three urban metropolitan counties (Douglas, Lancaster, and Sarpy).

Figure 43: Diagnosed Diabetes*
Among Nebraska Adults by Race/Ethnicity, 2001-2002



*Adults that have been told by a doctor that they have diabetes (excluding gestational diabetes)
Note: racial categories include non-hispanic only
^Difference between race/ethnicity and white is significant at the .05 level
Missing data=259 cases (1.6%)
Source: Nebraska Behavioral Risk Factor Survey & Nebraska Minority Over-sample Risk Factor Survey

Cigarette Smoke

Introduction

The health consequences of cigarette smoking, including increased risk for heart disease and stroke, are serious. Nearly 1 in every 5 deaths per year in the United States, about 440,000 annual deaths, results from cigarette smoking[28]. Cigarette smokers, compared to nonsmokers, are 2–4 times more likely to develop coronary heart disease (CHD)[28]. In addition, cigarette smoking approximately doubles a person's risk for stroke[28]. Fortunately, if current smokers stop smoking their risk for CHD and stroke dramatically decrease[29,30].

Preventable Deaths and Diseases Related to Cigarette Smoking in Nebraska[31]

According to Smoking-Attributable Mortality, Morbidity, and Economic Cost (SAMMEC) estimates, approximately 2,450 Nebraskans die from cigarette smoking each year. In 1999, CVD was the second most common cause of tobacco-related death (second to cancer), causing 1 in every 3 tobacco- related deaths (32.8%). Of all CVDs, ischemic heart disease claimed the largest proportion of CVD deaths, accounting for 50 percent.

Years of Productive Life Lost due to Cigarette Smoking in Nebraska[31]

SAMMEC data from 1999 indicate that cigarette smoking results in an estimated 31,000 years of productive life lost (YPLL). Of all YPLL due to cigarette smoking among Nebraskans in 1999, CVD accounted for an estimated 10,400 years.

Health Care Expenditures due to Cigarette Smoking in Nebraska[31]

SAMMEC data from 1998 estimate that Nebraska had over $419 million in smoking-related health care expenditures.

Cigarette Smoking among Nebraska Adults, 2002[5]

Indicator Definition

Current cigarette smoking represents the percentage of adults that have smoked at least 100 cigarettes during their lifetime and currently smoke cigarettes every day or on some days.

Nebraska HP2010 Objective:
12 percent (#27-1a)

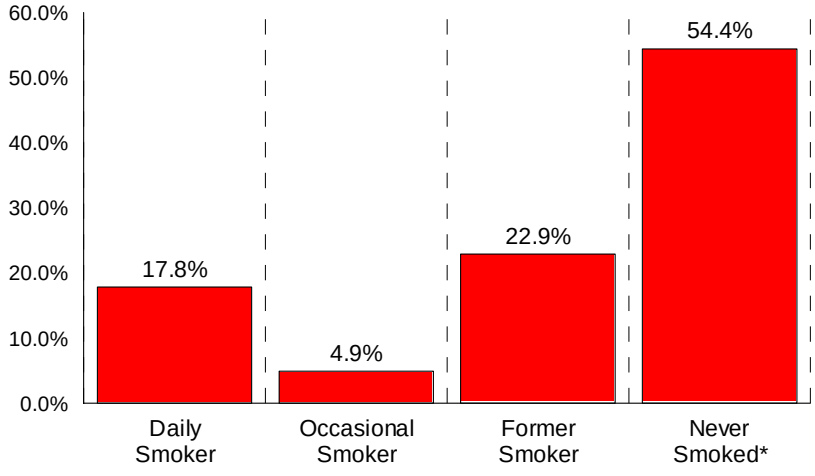
2002 Highlights

- More than 1 in every 5 Nebraska adults (22.7%), an estimated 277,000 to 309,000, currently smokes cigarettes (either daily or on some days) (Figure 44).

Trends

- Between 1989 and 2002, the trend in current cigarette smoking among Nebraska adults has remained virtually unchanged, at approximately 22 percent.

Figure 44: Cigarette Smoking* Among NE Adults, 2002



*Smoked <100 cigarettes during their lifetime
n=4,374 valid cases, 9 missing cases (0.2%)
Source: 2002 Nebraska Behavioral Risk Factor Survey

Compared to the Nation in 2002[2]

- Nebraska adults rank 25th lowest in current cigarette smoking among 54 U.S. states and territories (interquartile range 21.2% to 26.1%).
- Compared to bordering states, Nebraska adults are more likely than adults in Colorado (20.4%) to currently smoke cigarettes (p<.05), while less likely than adults in Missouri (26.5%) to currently smoke cigarettes (p<.001).

Descriptive Analysis of Current Cigarette Smoking, 2002

Age

- Among Nebraska adults, there is a negative linear relationship between age and current cigarette smoking, indicating that younger adults are more likely than older adults to currently smoke cigarettes.

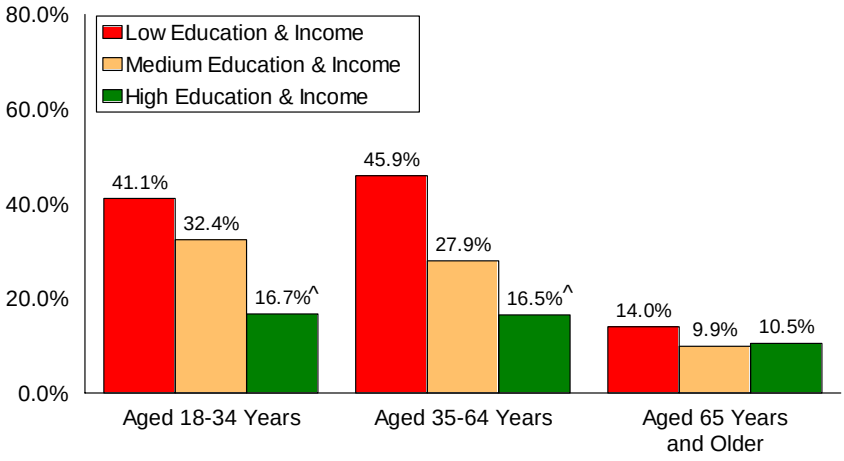
Gender

- Male adults in Nebraska are 36 percent more likely than female adults in Nebraska to currently smoke cigarettes, 26.3 percent and 19.3 percent respectively (p<.001).
- The most striking gender disparity in current cigarette smoking occurs among Nebraska adults aged 65 years and older, where males are nearly twice as likely as females to currently smoke cigarettes, 14.9 percent and 7.7 percent respectively (p<.001).

Education & Income

- Among Nebraska adults under 65 years of age, as level of education and income increase, current cigarette smoking decreases (Figure 45).

Figure 45: Current Cigarette Smoking* Among Nebraska Adults by Education & Income, 2002**



*Adults that curently smoke cigarettes daily or on some days
**Low ed/inc=<$25K income and H.S. or less education, medium ed/inc=neither low nor high ed/inc, high ed/inc=≥$35K income and education beyond high school
^Significantly lower than medium and high education and income at the .001 level
Listwise n=3,709 valid cases, 674 missing cases (15.4%)
Source: 2002 Nebraska Behavioral Risk Factor Survey

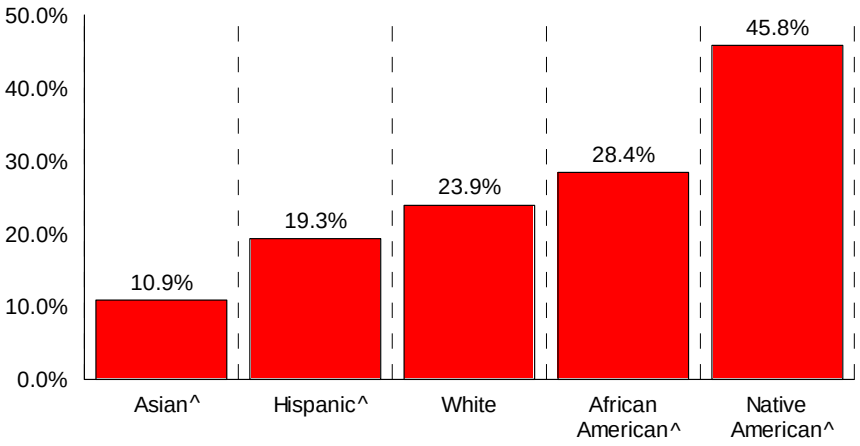
Race/Ethnicity Highlights from 2001 & 2002

- Close to half of all Native American adults in Nebraska currently smoke cigarettes (45.8%), making them more likely than all other racial and ethnic populations to currently smoke cigarettes (Figure 46).
- African American adults in Nebraska are more likely than White adults to currently smoke cigarettes (relative risk 1.2) while Asian and Hispanic adults are less likely than Whites to currently smoke cigarettes (relative risks of 0.46 and 0.81 respectively) (Figure 46).

Urban/Rural

- There is no difference in current cigarette smoking between Nebraska adults living inside and outside of Nebraska's three urban metropolitan counties (Douglas, Lancaster, and Sarpy).

Figure 46: Current Smoking*
Among Nebraska Adults by Race/Ethnicity, 2001-2002



*Adults that curently smoke cigarettes daily or on some days
Note: racial categories include non-hispanic only
^Difference betw een race/ethnicity and w hite is significant at the .01 level
Missing data=280 cases (1.7%)
Source: Nebraska Behavioral Risk Factor Survey & Nebraska Minority Over-sample Risk Factor Survey

Cigarette Smoking among Nebraska Youth, 2003[31]

Indicator Definition: Current Cigarette Smoking

Current cigarette smoking represents the percentage of high school students that smoked one or more cigarettes during the 30 days preceding the survey.

Nebraska HP2010 Objective: 15 percent (#27-2b)

2003 Highlights for Nebraska High School Students

- Approximately 1 in every 4 Nebraska high school students (24.1%) currently smokes cigarettes.

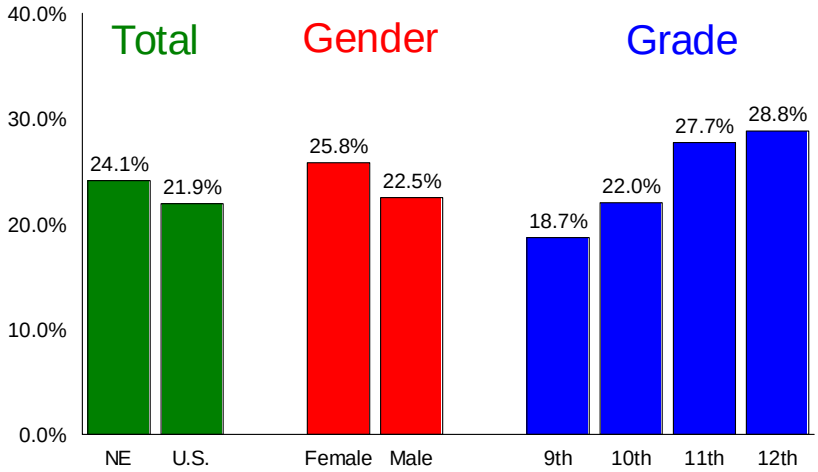
2003 Highlights for Nebraska Middle School Students

- Approximately 1 in every 14 (7%) Nebraska middle school students, in grades 6-8, currently smokes cigarettes.

Cigarette Smoking Trends:

- Between 1997 and 2003, current cigarette smoking declined 39 percent among Nebraska high school students, declining from 39.2 percent to 24.1 percent.
- Current cigarette smoking among Nebraska middle school students declined from 10 percent in 1999 to 7 percent in 2002.

Figure 47: Current Cigarette Smoking*
Among Nebraska High School Students, 2003



*Students reporting that they smoked one or more cigarettes during the 30 days preceding the survey
Source: 2003 Nebraska Youth Risk Behavior Survey

Compared to the Nation in 2003[10,11]

- High school students in Nebraska are more likely than high school students nationally to currently smoke cigarettes, 24.1 percent and 21.9 percent respectively ($p<.05$).

Descriptive Analysis of current cigarette smoking, 2003

Gender

- Unlike adults, female high school students are more likely than male high school students to currently smoke cigarettes, 25.8 percent and 22.5 percent respectively.
- Among middle school students in Nebraska, there is no significant gender difference in current cigarette smoking (7 percent for males and 8 percent for females).

Grade

- Current cigarette smoking among Nebraska high school students increases as grade level increases. Students in grade 12 are 1.5 times more likely than students in grade 9 to currently smoke cigarettes, 28.8 percent and 18.7 percent respectively.
- Compared to Nebraska students in grade 6, students in grade 8 are more than three times as likely to currently smoke cigarettes, 3 percent and 10 percent respectively.

Exposure to Secondhand Smoke among Nebraska Infants[31]

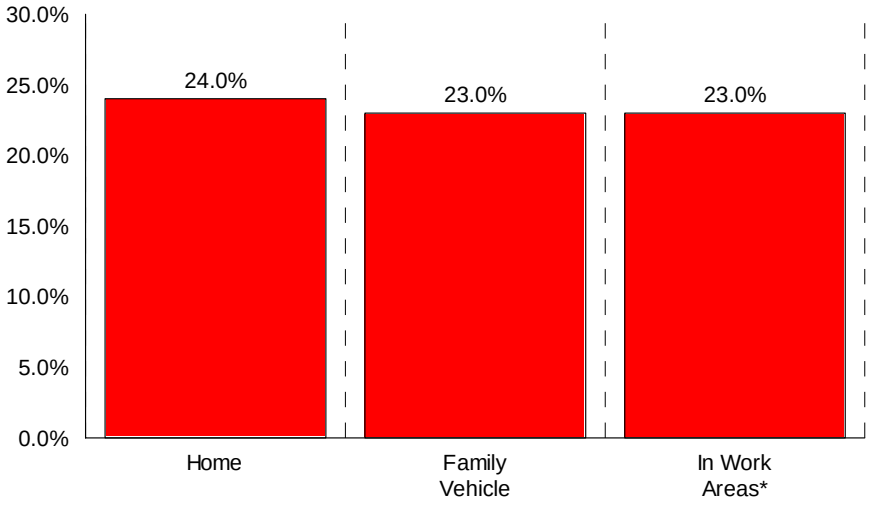
According to data from the Nebraska Pregnancy Risk Assessment Monitoring System (PRAMS), data through December 2003 suggest that, on average, approximately 12 percent of Nebraska infants (or about 1 in every 8) spend at least some time in the same room with a smoker each day.

Exposure to Secondhand Smoke among Nebraska Adults[31]

2003 Highlights

- Approximately 1 in every 4 Nebraska adults (24%) indicate that smoking is allowed in one or more parts of their home.
- Approximately 1 in every 4 Nebraska adults (23%) indicate that smoking is allowed is allowed in the family vehicle.
- Among Nebraska adults that are employed, 23 percent indicated that smoking is allowed in one or more work areas (at their place of employment).

Figure 48: Smoking is allowed in each of the following settings*, reported by Nebraska adults, 2003



*Among Nebraska adults that are employed, smoking is allowed in one or more work areas
Source: 2003 Nebraska Adult Tobacco/Social Climate Survey

Multiple Risk Factors for CVD

Introduction

There are a variety of risk factors for cardiovascular disease. These risk factors, when combined, can increase the risk for cardiovascular disease as well as other chronic diseases such as cancer, diabetes, and chronic lung disease[32].

Multiple Risk Factors for CVD among Nebraska Adults[5]

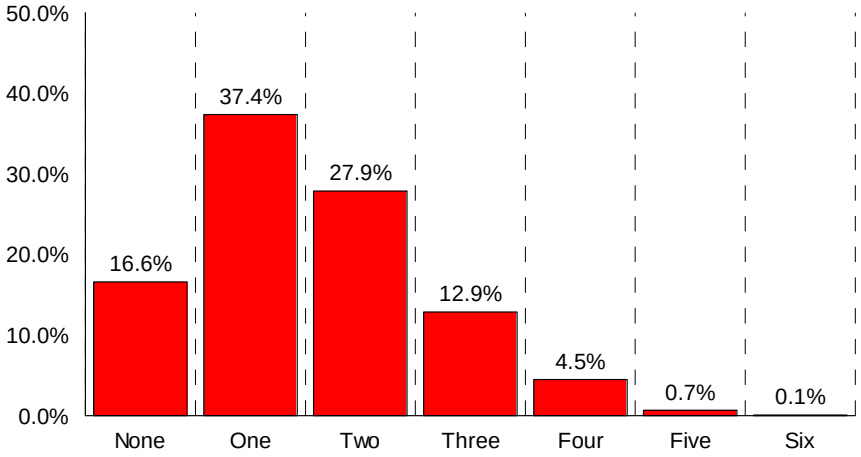
Indicator Definition

Two or more CVD Risk Factors represents the percentage of adults that are at risk from two or more of the following six CVD risk factors: obesity, no recommended physical activity, high blood pressure, high blood cholesterol, diabetes, and current cigarette smoking.

2001 Highlights

- Among Nebraska adults, more than 8 in every 10 (83.4%) has one or more CVD risk factors, nearly half has 2 or more CVD risk factors, and nearly 1 in every 5 (18.2%) has 3 or more CVD risk factors.

Figure 49: Number of Preventable Risk Factors for CVD* Among Nebraska Adults, 2001



*From the following six CVD risk factors: obesity, no recommended physical activity, high blood pressure, high blood cholesterol, diabetes, and current cigarette smoking
Missing data=522 cases (14.1%)
Source: 2001 Nebraska Behavioral Risk Factor Survey

Descriptive Analysis of 2 or more CVD risk factors, 2001

Age

- Among Nebraska adults, there is a positive linear relationship between age and 2 or more CVD risk factors, indicating that older adults are more likely than younger adults to have 2 or more CVD risk factors (Figure 50). The most dramatic increase occurs between younger and middle aged adulthood (25 to 64 years of age).

Gender

- There is no difference in 2 or more CVD risk factors among Nebraska adults by gender.

Education & Income

- Among Nebraska adults under 65 years of age, as level of education and income increase; the percentage of adults with 2 or more risk factors decreases (Figure 51).
- The most striking difference occurs among Nebraska adults aged 18-34 years where those with low education and income are 59 percent more likely than those with high education and income to have 2 or more CVD risk factors.

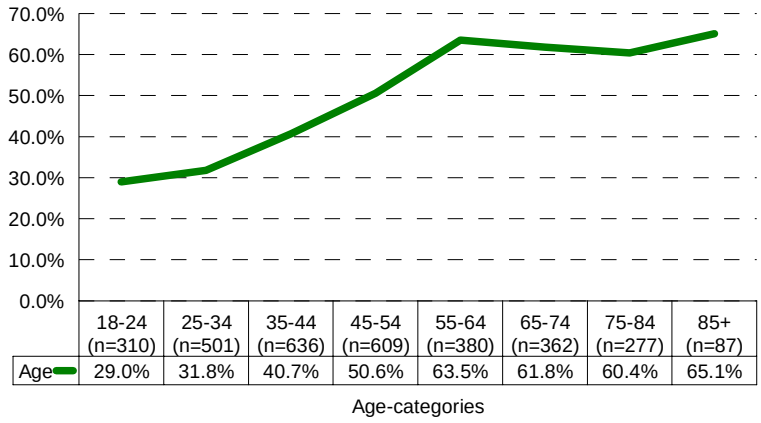
Race/Ethnicity

- Native American adults in Nebraska are more likely than White adults to have 2 or more CVD risk factors (relative risk 1.4) while Asian and Hispanic adults are less likely than Whites to have 2 or more CVD risk factors (relative risks of 0.39 and 0.82 respectively).
- While the difference between African American and White adults in Nebraska with 2 or more CVD risk factors is non-significant, African Americans are 42 percent more likely than Whites to have 3 or more CVD risk factors, 28.3 percent and 19.9 percent respectively (p<.001).
- African American females are 30 percent more likely than African American males in Nebraska to have 2 or more CVD risk factors, 61.4 percent and 47.1 percent respectively (p<.05).

Urban/Rural

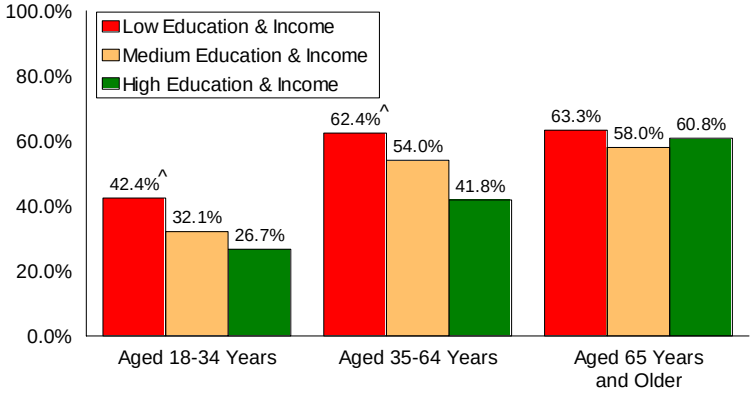
- There is no difference in the percentage of Nebraska adults with 2 or more CVD risk factors among those living inside and outside of Nebraska's three urban metropolitan counties (Douglas, Lancaster, and Sarpy).

**Figure 50: 2 or More CVD Risk Factors*
Among NE Adults by Age, 2001**



*Adults reported 2+ of the following six CVD risk factors: obesity, no recommended physical activity, high blood pressure, high blood cholesterol, diabetes, and current cigarette smoking
Source: 2001 Nebraska Behavioral Risk Factor Survey

**Figure 51: 2 or More CVD Risk Factors*
Among Nebraska Adults by Education & Income**, 2001**



*Adults reported 2+ of the following six CVD risk factors: obesity, no recommended physical activity, high blood pressure, high blood cholesterol, diabetes, and current cigarette smoking
Source: 2001 Nebraska Behavioral Risk Factor Survey

**Low ed/inc=<$25K income and H.S. or less education, medium ed/inc=neither low nor high ed/inc, high ed/inc=≥$35K income and education beyond high school
^Significantly higher than high ed/inc at the .01 level
Listwise n=2,639 valid cases, 1060 missing cases (28.7%)

Table 4: CVD Risk Factors Among Nebraska Adults

	Diagnosed Diabetes 2002#		Obesity 2002#		Diagnosed High Blood Pressure 2001		Current Cholesterol Screening 2001		Diagnosed High Blood Cholesterol 2001		Current Cigarette Smoking 2002#		5-a-day 2002	
	n*	%**	n*	%**	n*	%**	n*	%**	n*	%**	n*	%**	n*	%**
Overall	4,378	5.8%	4,139	23.2%	3,687	22.6%	3,598	65.4%	2,669	27.8%	4,374	22.7%	4,380	18.0%
Age														
18-34	997	1.3%	949	17.8%	935	6.3%	903	41.3%	443	11.2%	997	27.7%	998	16.8%
35-64	2,212	6.4%	2,083	27.2%	1,861	22.3%	1,834	72.8%	1,463	28.2%	2,206	24.0%	2,212	15.1%
65+	1,146	12.1%	1,096	21.2%	856	50.0%	828	86.2%	744	39.2%	1,147	10.6%	1,146	28.1%
Gender														
Female	2,735	5.6%	2,536	20.4%	2,267	23.7%	2,214	68.8%	1,690	26.6%	2,732	19.3%	2,734	22.9%
Male	1,643	6.1%	1,603	26.0%	1,420	21.5%	1,384	61.8%	979	29.1%	1,642	26.3%	1,646	12.8%
Race+														
African American	922	10.3%	850	31.0%	402	29.5%	393	65.2%	277	18.7%	919	28.4%	520	15.2%
Asian	151	2.8%	143	8.6%	73	13.6%	71	56.4%	44	21.5%	153	10.9%	80	22.9%
Hispanic	1,128	6.8%	844	22.8%	504	15.4%	493	51.1%	273	17.5%	1,128	19.3%	620	13.5%
Native American	106	12.9%	101	30.8%	-	-	-	-	-	-	106	45.8%	60	23.3%
White	13,707	6.1%	12,965	22.7%	6,164	23.7%	6,024	67.6%	4,518	27.5%	13,687	23.9%	7,543	18.7%
Urban/Rural++														
Urban Metro	1,926	5.9%	1,814	21.8%	1,643	20.7%	1,611	65.4%	1,201	24.8%	1,923	23.7%	1,927	17.8%
Non-Urban Metro	2,441	5.8%	2,315	24.3%	2,027	24.2%	1,970	65.6%	1,458	30.1%	2,440	21.9%	2,442	18.3%

*Non-weighted sample size value

**Weighted percentage

+Racial categories include non-hispanic only; Includes respondents from both the BRFSS and Minority Oversample BRFSS

++Urban Metro includes adults living in Douglas, Lancaster, or Sarpy counties; Non-Urban Metro includes all other counties

Race/Ethnicity includes data from 2001 and 2002 combined

Note: see indicator definitions under the appropriate sub-headings within this chapter for further detail

Note: blank cells respresent insufficient data to calculate percentage (n<50)

Source: Nebraska Behavioral Risk Factor Surveillance System

Table 5: Physical Activity among Nebraska Adults

	No Leisure Time PA^ 2002#		Sufficient Moderate PA^ 2001		Sufficient Vigorous PA^ 2001		Recommended PA^ 2001		Regular Walking^^ 2003		Regular Strengthening Exercise^^ 2003	
	n*	%**	n*	%**	n*	%**	n*	%**	n*	%**	n*	%**
Overall	4,380	22.0%	3,478	24.2%	3,546	16.3%	3,462	34.1%	5,462	40.4%	5,832	31.9%
Age												
18-34	998	15.6%	896	22.3%	893	25.5%	887	38.2%	1,334	44.0%	1,414	45.2%
35-64	2,212	23.1%	1,776	24.7%	1,805	15.2%	1,769	33.7%	2,860	41.2%	3,024	28.5%
65+	1,145	29.7%	786	26.3%	824	4.8%	786	29.2%	1,225	32.8%	1,345	20.4%
Gender												
Female	2,733	77.0%	2,126	24.7%	2,191	13.8%	2,120	32.6%	3,710	37.2%	3,941	26.8%
Male	1,647	79.1%	1,352	23.7%	1,355	19.4%	1,342	35.7%	1,752	44.0%	1,891	37.7%
Race+												
African American	922	38.1%	317	10.2%	355	15.2%	300	24.1%	134	36.2%	135	37.6%
Asian	153	29.8%	65	11.2%	64	23.0%	61	32.3%	-	-	-	-
Hispanic	1,131	44.2%	422	17.8%	458	9.7%	412	24.8%	230	40.1%	246	31.7%
Native American	106	30.8%	-	-	-	-	-	-	-	-	-	-
White	13,711	25.9%	5,279	20.8%	5,663	12.9%	5,162	30.2%	4,953	40.5%	5,306	31.5%
Urban/Rural++												
Urban Metro	1,926	19.8%	1,562	21.7%	1,575	20.2%	1,551	35.4%	2,516	42.9%	2,638	36.0%
Non-Urban Metro	2,444	23.8%	1,906	26.3%	1,960	13.1%	1,901	33.1%	2,946	38.1%	3,194	28.4%

*Non-weighted sample size value

**Weighted percentage

+Racial categories include non-hispanic only; Includes respondents from both the BRFSS and Minority Oversample BRFSS

++Urban Metro includes adults living in Douglas, Lancaster, or Sarpy counties; Non-Urban Metro includes all other counties

Race/Ethnicity includes data from 2001 and 2002 combined

Note: see indicator definitions under the appropriate sub-headings within this chapter for further detail

Note: blank cells respresent insufficient data to calculate percentage (n<50)

^Source: Nebraska Behavioral Risk Factor Surveillance System

^^Source: 2003 Nebraska Adult Tobacco/Social Climate Survey

Table 6: CVD Risk Factors among Nebraska Adults by Education and Income by Age

	Diagnosed Diabetes 2002		Obesity 2002		Diagnosed High Blood Pressure 2001		Current Cholesterol Screening 2001		Diagnosed High Blood Cholesterol 2001		Current Cigarette Smoking 2002		5-a-day 2002	
	n*	%**	n*	%**	n*	%**	n*	%**	n*	%**	n*	%**	n*	%**
Aged 18-34 years														
Low[1]	111	1.7%	98	24.5%	111	5.9%	107	25.4%	35	7.1%	111	41.4%	111	18.0%
Medium[2]	436	1.6%	422	15.1%	405	6.8%	389	41.1%	186	11.7%	436	32.4%	437	17.3%
High[3]	336	1.0%	328	17.6%	275	6.7%	269	56.8%	169	14.0%	336	16.7%	336	15.0%
Aged 35-64 years														
Low[1]	249	10.0%	238	34.5%	207	28.3%	205	68.0%	152	24.4%	247	45.9%	249	9.7%
Medium[2]	790	9.0%	755	31.5%	710	24.6%	701	67.2%	537	30.3%	790	27.9%	790	12.0%
High[3]	935	3.5%	896	23.0%	685	17.8%	676	79.4%	577	28.1%	931	16.5%	935	17.8%
Aged 65+ years														
Low[1]	348	15.0%	340	24.5%	254	52.4%	245	83.2%	218	40.8%	348	14.0%	348	25.3%
Medium[2]	388	11.4%	379	20.8%	249	44.8%	244	89.6%	227	37.2%	388	9.9%	388	32.3%
High[3]	122	6.3%	119	15.1%	64	50.1%	64	100.0%	63	38.0%	122	10.5%	122	26.9%

1. education of ≤ high school graduate and household income of < $25 thousand annually
2. neither low nor high education and income
3. education beyond high school (some college or college graduate) and household income of ≥ $35 thousand annually

Note: see indicator definitions under the appropriate sub-headings within this chapter for further detail

*Non-weighted sample size value

**Weighted percentage

Source: Nebraska Behavioral Risk Factor Surveillance System

Table 7: Physical Activity among Nebraska Adults by Education and Income by Age

	No Leisure Time PA^ 2002		Sufficient Moderate PA^ 2001		Sufficient Vigorous PA^ 2001		Recommended PA^ 2001		Regular Walking^^ 2001		Regular Strengthening Exercise^^ 2002	
	n*	%**	n*	%**	n*	%**	n*	%**	n*	%**	n*	%**
Aged 18-34 years												
Low[1]	111	30.0%	102	19.3%	104	16.4%	102	31.1%	131	47.1%	144	34.9%
Medium[2]	437	13.8%	390	23.0%	386	26.0%	386	38.8%	516	43.9%	545	47.3%
High[3]	336	9.2%	272	25.4%	271	31.3%	270	44.3%	511	45.9%	534	46.5%
Aged 35-64 years												
Low[1]	249	46.8%	197	26.0%	203	8.4%	197	29.1%	247	35.7%	271	20.4%
Medium[2]	790	28.9%	685	25.9%	691	11.6%	680	31.0%	978	42.3%	1,045	24.3%
High[3]	934	11.6%	660	22.8%	670	22.8%	658	38.0%	1,334	42.0%	1,379	33.6%
Aged 65+ years												
Low[1]	348	39.8%	242	20.5%	251	3.9%	242	23.7%	323	28.9%	355	15.0%
Medium[2]	388	24.0%	237	34.1%	241	6.9%	235	37.2%	445	32.8%	483	21.9%
High[3]	122	11.2%	61	37.0%	63	7.3%	61	38.4%	158	45.7%	173	29.3%

1. education of ≤ high school graduate and household income of < $25 thousand annually
2. neither low nor high education and income
3. education beyond high school (some college or college graduate) and household income of ≥ $35 thousand annually

Note: see indicator definitions under the appropriate sub-headings within this chapter for further detail

*Non-weighted sample size value

**Weighted percentage

^Source: Nebraska Behavioral Risk Factor Surveillance System

^^Source: 2003 Nebraska Adult Tobacco/Social Climate Survey

Table 8: Nutrition among Nebraska High School Students, 2003

	5-a-day		Regular Milk Consumption		Regular Soda Consumption		Excessive Soda Consumption	
	n*	%**	n*	%**	n*	%**	n*	%**
Overall	2,750	16.3%	2,888	18.4%	2,558	50.7%	2,558	23.8%
Gender								
Female	1,389	14.3%	1,447	12.6%	1,293	42.8%	1,293	17.7%
Male	1,359	18.3%	1,439	24.0%	1,263	58.5%	1,263	29.7%
Grade								
9th	589	17.1%	625	22.4%	570	48.7%	570	21.9%
10th	803	18.8%	842	19.2%	751	46.1%	751	21.7%
11th	689	12.7%	721	16.0%	634	53.0%	634	26.2%
12th	660	16.6%	691	15.5%	595	55.3%	595	26.0%

*Non-weighted sample size value

**Weighted percentage

Note: see indicator definitions under the appropriate sub-headings within this chapter for further detail

Source: 2003 Nebraska Youth Risk Behavior Survey

Table 9: Physical Activity among Nebraska High School Students, 2003

	Sufficient Moderate PA		Sufficient Vigorous PA		Regular Strengthening Exercise		Sufficient PA in all its forms		Insufficient PA		Regular Sports Team Participation		Quality Daily PE Class	
	n*	%**	n*	%**	n*	%**	n*	%**	n*	%**	n*	%**	n*	%**
Overall	2,879	26.7%	2,882	64.7%	2,896	53.6%	2,852	19.2%	2,859	32.0%	2,751	41.9%	2,540	33.3%
Gender														
Female	1,436	23.7%	1,439	59.7%	1,444	46.5%	1,424	15.5%	1,428	36.4%	1,378	35.2%	1,283	27.6%
Male	1,441	29.6%	1,441	69.3%	1,450	60.3%	1,426	22.7%	1,429	27.7%	1,371	48.2%	1,256	38.9%
Grade														
9th	619	28.2%	620	71.0%	625	59.7%	612	22.3%	613	25.9%	594	48.2%	537	43.4%
10th	843	29.0%	841	66.9%	846	54.1%	833	20.6%	835	29.0%	808	42.2%	759	33.5%
11th	722	24.0%	724	63.0%	724	52.9%	717	17.2%	720	33.4%	704	38.0%	637	24.5%
12th	686	25.5%	688	57.1%	692	47.5%	681	16.6%	682	40.0%	637	38.3%	600	31.3%

*Non-weighted sample size value

**Weighted percentage

Note: see indicator definitions under the appropriate sub-headings within this chapter for further detail

Source: 2003 Nebraska Youth Risk Behavior Survey